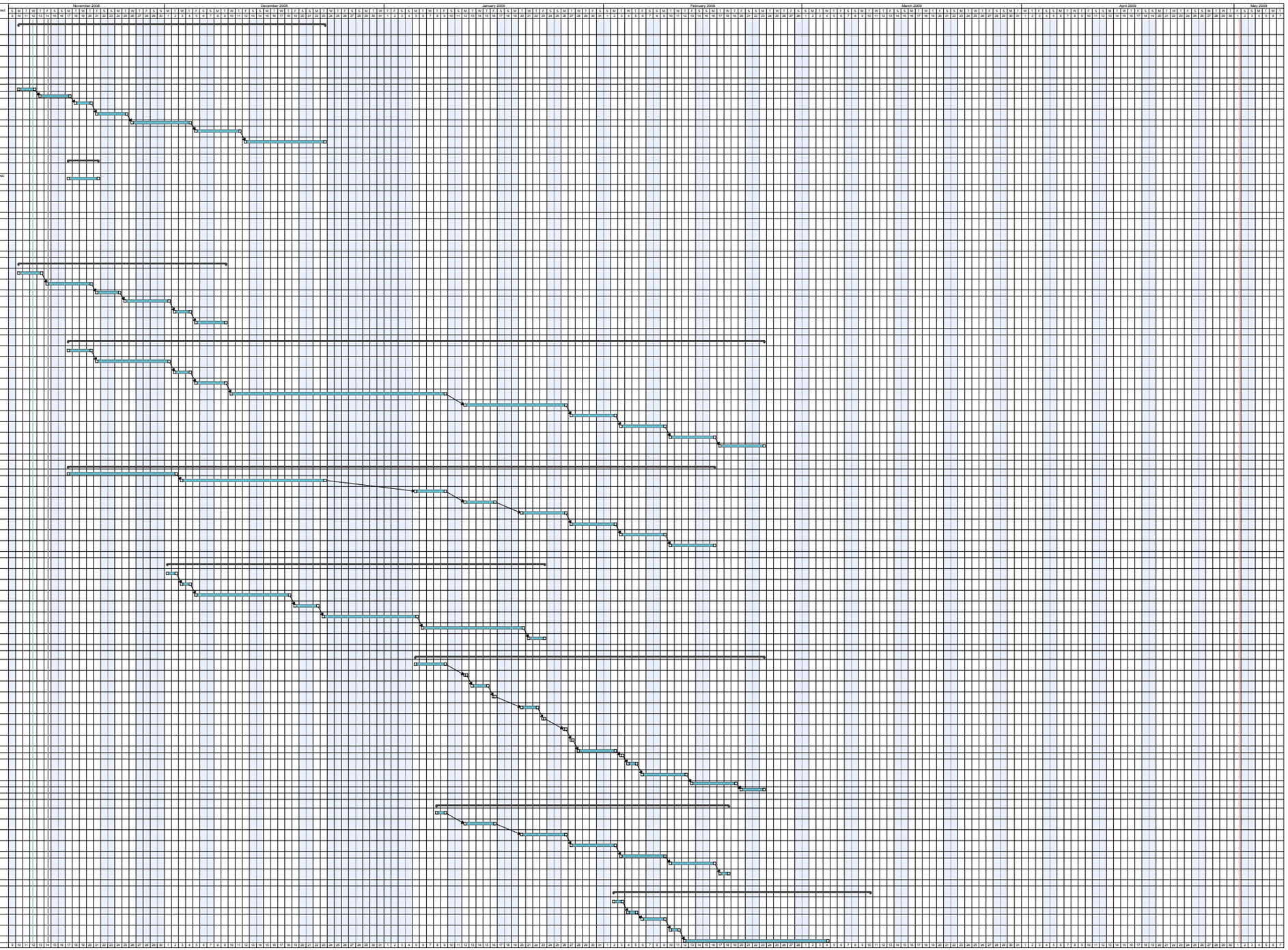
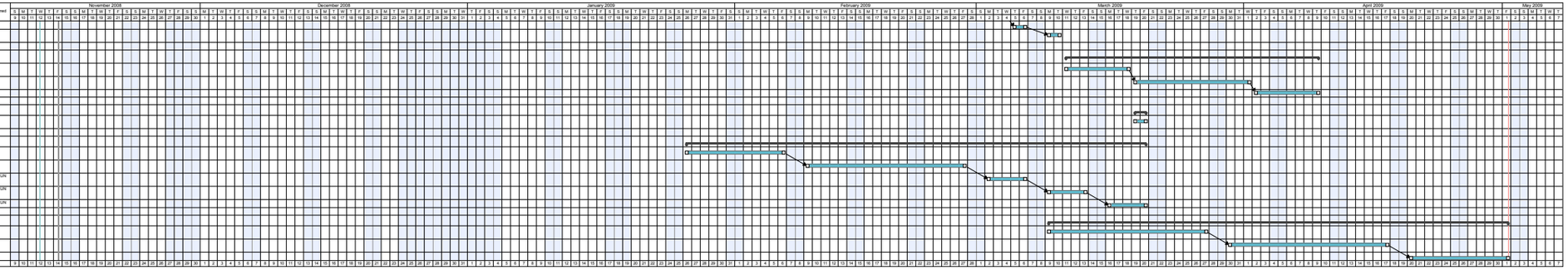
| | Activity Name | Duration (Work Days) | Start Date | Finish Date | Predecessors | Resources Assigned |
|---|---|---|---|---|---|---|
| 1 | **COMPLETE INITIAL CATHODE FLATNESS MEASUREMENTS** | **30.00** | **/ Nov / 10 / ye** | **/ Dec / 23 / 20** | | |
| 2 | COMPLETE DESIGN OF NEW MEASUREMENT STATION | | | | | |
| 3 | PROCURE NEEDED PARTS FOR STATION | | | | | |
| 4 | CONSTRUCT NEW MEASUREMENT STATION | | | | | |
| 5 | PERFORM BASIC SYSTEM CHECKOUT | | | | | |
| 6 | PERFORM FINAL SYSTEM MODIFICATIONS | | | | | |
| 7 | MEASURE SURFACE FLATNESS OF GRANITE TABLE | 3.00 | / Nov / 10 / we | / Nov / 12 / 20 | | MICAH |
| 8 | OPTIMIZE SYSTEM AND SCAN PARAMETERS | 3.00 | / Nov / 13 / fr | / Nov / 17 / 20 | 7 | MICAH |
| 9 | MEASURE FLATNESS OF HIGH TENSION CATHODE AT SEVERAL ROTATION ANGLES | 3.00 | / Nov / 18 / tr | / Nov / 20 / 20 | 8 | MICAH |
| 10 | MEASURE FLATNESS OF LOW TENSION CATHODE AT SEVERAL ROTATION ANGLES | 3.00 | Nov / 21 / 20 | we / Nov / 25 / 20 | 9 | MICAH |
| 11 | ANALYZE MEASUREMENT DATA | 5.00 | / Nov / 26 / 20 | tr / Dec / 04 / 20 | 10 | MICAH |
| 12 | PREPARE DETAILED NOTE ON ANALYSIS RESULTS | 5.00 | Dec / 05 / 20 | tr / Dec / 11 / 20 | 11 | MICAH |
| 13 | DOCUMENT SYSTEM AND PROCEDURES FOR OPERATION AND DATA ANALYSIS | 8.00 | Dec / 12 / 20 | we / Dec / 23 / 20 | 12 | MICAH |
| 14 | | | | | | |
| 15 | **DETERMINE ALLOWABLE CATHODE DEVIATIONS** | **5.00** | **/ Nov / 17 / 0** | **/ Nov / 21 / 20** | | |
| 16 | COMPUTE ALLOWABLE SURFACE DEVIATIONS OF CATHODE SURFACE | | | | | |
| 17 | COMPLETE CATHODE SPECIFICATIONS AND TOLERANCE TABLE | 5.00 | / Nov / 17 / 0 | / Nov / 21 / 20 | | BILL, DSC, EUGENE |
| 18 | | | | | | |
| 19 | **ELECTRICAL TEST PROCEDURES FOR PROTOTYPE CATHODES** | | | | | |
| 20 | ASSEMBLE TEST STATION AND REQUIRED MATERIALS | | | | | |
| 21 | PREPARE CATHODE QA DOCUMENT | | | | | |
| 22 | CARRY OUT QA MEASUREMENTS ON FIRST ORDER OD OF 2 MICRON BOARDS | | | | | |
| 23 | CARRY OUT QA MEASUREMENTS ON FIRST ORDER OD OF 5 MICRON BOARDS | | | | | |
| 24 | COMMUNICATE WITH ALLFLEX ON MEASUREMENT FINDINGS | | | | | |
| 25 | | | | | | |
| 26 | **FINALIZE CATHODE PANEL LAYUP PROCEDURES** | **20.00** | **/ Nov / 10 / we** | **/ Dec / 09 / 20** | | |
| 27 | DESIGN GLUE STRIP FOR ATTACHING CATHODE PANELS | 4.00 | / Nov / 10 / tr | / Nov / 13 / 20 | | BRIAN |
| 28 | CONSTRUCT PROTOTYPE AND TEST PROCEDURES | 5.00 | Nov / 14 / 20 | fr / Nov / 20 / 20 | 27 | BRIAN |
| 29 | PERFORM SYSTEM LOAD TEST (TEST TO FAILURE) | 2.00 | Nov / 21 / 20 | tr / Nov / 24 / 20 | 28 | BRIAN |
| 30 | FINALIZE PROCEDURES BASED ON LESSONS LEARNED | 3.00 | / Nov / 25 / 20 | tr / Dec / 01 / 20 | 29 | BRIAN |
| 31 | DESIGN AND TEST CATHODE PANEL ALIGNMENT SYSTEM | 3.00 | / Dec / 02 / 20 | tr / Dec / 04 / 20 | 30 | BRIAN |
| 32 | DOCUMENT PROCEDURE FOR CATHODE CONSTRUCTION MANUAL | 3.00 | Dec / 05 / 20 | we / Dec / 09 / 20 | 31 | BRIAN |
| 33 | | | | | | |
| 34 | **DEVELOP SYSTEM FOR MEASURING CATHODE TENSION IN-SITU** | **60.00** | **/ Nov / 17 / 0** | **/ Feb / 23 / 20** | | |
| 35 | MODIFY EXISTING SYSTEM TO PROVIDE A KNOWN UNIFORM MEMBRANE TENSION | 4.00 | / Nov / 17 / 0 | tr / Nov / 20 / 20 | | BILL |
| 36 | SUBMIT DRAWINGS TO JLAB MACHINE SHOP FOR CONSTRUCTION | 5.00 | Nov / 21 / 20 | fr / Dec / 01 / 20 | 35 | BILL |
| 37 | DEVELOP LASER MOUNTING SYSTEM FOR TENSION MEASUREMENT | 3.00 | / Dec / 02 / 20 | tr / Dec / 04 / 20 | 36 | BRIAN |
| 38 | DESIGN METHOD FOR CONTROLLING BOND LINE THICKNESS DURING LAMINATION | 3.00 | Dec / 05 / 20 | we / Dec / 09 / 20 | 37 | BILL |
| 39 | PROCURE NEEDED PARTS OF BOND LINE CONTROL | 15.00 | / Dec / 10 / 20 | tr / Jan / 09 / 20 | 38 | BILL |
| 40 | TEST METHODS FOR LAMINATION BOND LINE CONTROL | 10.00 | / Jan / 12 / 20 | tr / Jan / 28 / 20 | 39 | BRIAN |
| 41 | CONSTRUCT CATHODE PROTOTYPE USING NEW SYSTEM | 5.00 | / Jan / 27 / 20 | tr / Feb / 02 / 20 | 40 | BRIAN |
| 42 | MODIFY SYSTEM DESIGN BASED ON LESSONS LEARNED (IF NEEDED) | 5.00 | / Feb / 03 / 20 | tr / Feb / 09 / 20 | 41 | BRIAN |
| 43 | CONSTRUCT SECOND CATHODE PROTOTYPE (IF NEEDED) | 5.00 | / Feb / 10 / 20 | tr / Feb / 16 / 20 | 42 | BRIAN |
| 44 | DOCUMENT SYSTEM AND PROCEDURES FOR INCLUSION IN CATHODE CONSTRUCTION MANUAL | 5.00 | / Feb / 17 / 20 | tr / Feb / 23 / 20 | 43 | BRIAN |
| 45 | | | | | | |
| 46 | **DEVELOP CATHODE EDGE CUTTING SYSTEM** | **55.00** | **/ Nov / 17 / 0** | **tr / Feb / 16 / 20** | | |
| 47 | DESIGN CATHODE EDGE CUTTING SYSTEM | 10.00 | / Nov / 17 / 0 | we / Dec / 02 / 20 | | BILL |
| 48 | SUBMIT DRAWINGS TO JLAB MACHINE SHOP FOR CONSTRUCTION | 15.00 | / Dec / 03 / 0 | we / Dec / 23 / 20 | 47 | BILL |
| 49 | DEVELOP LASER MOUNTING SYSTEM FOR TENSION MEASUREMENT | 5.00 | / Jan / 05 / 20 | tr / Jan / 09 / 20 | 48 | BILL, MARK |
| 50 | DESIGN METHOD FOR CONTROLLING BOND LINE THICKNESS DURING LAMINATION | 5.00 | / Jan / 12 / 20 | tr / Jan / 16 / 20 | 49 | BILL, MARK |
| 51 | PROCURE NEEDED PARTS OF BOND LINE CONTROL | 5.00 | / Jan / 20 / 20 | tr / Jan / 26 / 20 | 50 | BILL, MARK |
| 52 | TEST METHODS FOR LAMINATION BOND LINE CONTROL | 5.00 | / Jan / 27 / 20 | tr / Feb / 02 / 20 | 51 | BILL, MARK |
| 53 | CONSTRUCT CATHODE PROTOTYPE USING NEW SYSTEM | 5.00 | / Feb / 03 / 20 | tr / Feb / 09 / 20 | 52 | MARK |
| 54 | MODIFY SYSTEM DESIGN BASED ON LESSONS LEARNED (IF NEEDED) | 5.00 | / Feb / 10 / 20 | tr / Feb / 16 / 20 | 53 | MARK |
| 55 | | | | | | |
| 56 | **DEVELOP GROUND CONNECTION SCHEME FOR CATHODES** | **31.00** | **/ Dec / 01 / 0** | **tr / Jan / 23 / 20** | | |
| 57 | LAYOUT DESIGN FOR ATTACHING GROUND CONNECTIONS | 2.00 | / Dec / 01 / 20 | we / Dec / 02 / 20 | | BILL |
| 58 | PREPARE NECESSARY DRAWINGS FOR JLAB MACHINE SHOP | 2.00 | / Dec / 03 / 20 | tr / Dec / 04 / 20 | 57 | BILL |
| 59 | SUBMIT FRAME MACHINING WORK TO JLAB MACHINE SHOP | 10.00 | Dec / 05 / 20 | tr / Dec / 18 / 20 | 58 | BILL |
| 60 | INSTALL GROUND CONNECTIONS ON PROTOTYPE FRAME | 2.00 | Dec / 19 / 20 | fr / Dec / 22 / 20 | 59 | BRIAN |
| 61 | FINALIZE SYSTEM FOR MAKING CONNECTIONS TO CATHODE BOARDS | 2.00 | / Dec / 23 / 20 | tr / Jan / 03 / 20 | 60 | BRIAN |
| 62 | SUBMIT FULL-SCALE PROTOTYPE FRAMES TO JLAB MACHINE SHOP FOR MODIFICATIONS | 10.00 | / Jan / 06 / 20 | we / Jan / 20 / 20 | 61 | BILL |
| 63 | INSTALL GROUND INSERTS ON ALL CATHODE FRAMES | 3.00 | / Jan / 21 / 20 | tr / Jan / 23 / 20 | 62 | BRIAN |
| 64 | | | | | | |
| 65 | **CONSTRUCT PROTOTYPE CATHODE SANDWICH** | **35.00** | **/ Jan / 05 / 20** | **tr / Feb / 23 / 20** | | |
| 66 | PREPARE COMPLETE DRAFT OF CATHODE CONSTRUCTION MANUAL | 5.00 | / Jan / 05 / 20 | tr / Jan / 09 / 20 | | BILL, BRIAN |
| 67 | DEVELOP CATHODE BOARD HANDLING PROCEDURES | 1.00 | / Jan / 12 / 20 | tr / Jan / 12 / 20 | 66 | BRIAN |
| 68 | USING 2 MICRON BOARDS, LAYUP A CATHODE BOARD | 3.00 | / Jan / 13 / 20 | tr / Jan / 15 / 20 | 67 | BRIAN |
| 69 | MEASURE BOARD GEOMETRY ALONG AND ACROSS STRIPS | 1.00 | Jan / 16 / 20 | tr / Jan / 16 / 20 | 68 | BRIAN |
| 70 | USING THE CONSTRUCTION MANUAL, CONSTRUCT CATHODE TENSIONED TO 300 N/m | 3.00 | / Jan / 20 / 20 | tr / Jan / 22 / 20 | 69 | BRIAN |
| 71 | MEASURE THE CATHODE PLANE DISTORTIONS ALONG AND ACROSS STRIPS | 1.00 | Jan / 23 / 20 | tr / Jan / 23 / 20 | 70 | BRIAN |
| 72 | FINALIZE TENSION CHOICE BASED ON PROTOTYPE | 1.00 | / Jan / 26 / 20 | tr / Jan / 26 / 20 | 71 | DSC, EUGENE |
| 73 | MAKE GROUND CONNECTIONS ON CATHODE BOARD | 1.00 | / Jan / 27 / 20 | we / Jan / 27 / 20 | 72 | BRIAN |
| 74 | COMPLETE SECOND CATHODE FRAME | 4.00 | / Jan / 28 / 20 | tr / Feb / 02 / 20 | 73 | BRIAN |
| 75 | TENSION GROUND PLANE | 1.00 | / Feb / 03 / 20 | we / Feb / 03 / 20 | 74 | BRIAN |
| 76 | ASSEMBLE CATHODE SANDWICH AND DEVELOP FINAL PROCEDURES | 2.00 | / Feb / 04 / 20 | tr / Feb / 05 / 20 | 75 | BRIAN |
| 77 | MEASURE SURFACE FLATNESS ON BOTH CATHODES | 5.00 | / Feb / 06 / 20 | tr / Feb / 12 / 20 | 76 | MICAH |
| 78 | UPDATE CATHODE CONSTRUCTION MANUAL | 5.00 | / Feb / 13 / 20 | tr / Feb / 19 / 20 | 77 | BRIAN |
| 79 | UPDATE DESIGN DRAWINGS | 2.00 | / Feb / 20 / 20 | tr / Feb / 23 / 20 | 78 | BILL |
| 80 | | | | | | |
| 81 | **CONSIDER INTER-CATHODE SUPPORT SYSTEM** | **28.00** | **/ Jan / 08 / 20** | **tr / Feb / 18 / 20** | | |
| 82 | DETERMINE NEED FOR INCLUDING INTER-CATHODE SUPPORT SYSTEM | 2.00 | / Jan / 08 / 20 | tr / Jan / 09 / 20 | | BILL |
| 83 | DESIGN SYSTEM AND PREPARE MECHANICAL DRAWINGS (IF NEEDED) | 5.00 | / Jan / 12 / 20 | tr / Jan / 16 / 20 | 82 | BILL |
| 84 | CONSTRUCT REQUIRED SUPPORT PIECES (IF NEEDED) | 5.00 | / Jan / 20 / 20 | tr / Jan / 26 / 20 | 83 | MARK |
| 85 | PREPARE CATHODE SANDWICH PROTOTYPE WITH SUPPORTS (IF NEEDED) | 5.00 | / Jan / 27 / 20 | tr / Feb / 02 / 20 | 84 | BRIAN, MARK |
| 86 | MODIFY DESIGN BASED ON LESSONS LEARNED (IF NEEDED) | 5.00 | / Feb / 03 / 20 | tr / Feb / 09 / 20 | 85 | BILL |
| 87 | CONSTRUCT ADDITIONAL PROTOTYPES (IF NEEDED) | 5.00 | / Feb / 10 / 20 | tr / Feb / 16 / 20 | 86 | BRIAN, MARK |
| 88 | PREPARE FINAL SYSTEM MECHANICAL DRAWINGS (IF NEEDED) | 2.00 | / Feb / 17 / 20 | tr / Feb / 18 / 20 | 87 | BILL |
| 89 | | | | | | |
| 90 | **FINALIZE PLANS FOR INCLUDING GAS HOLES AND THROUGH HOLES CATHODES** | **27.00** | **/ Feb / 02 / 20** | **we / Mar / 10 / 20** | | |
| 91 | FINALIZE PLANS FOR INCLUDING GAS HOLES IN CATHODES | 2.00 | / Feb / 02 / 20 | we / Feb / 03 / 20 | | BILL |
| 92 | DEVELOP SYSTEM FOR INCLUDING GAS HOLES | 2.00 | / Feb / 04 / 20 | tr / Feb / 05 / 20 | 91 | BILL |
| 93 | FINALIZE PLANS FOR INCLUDING THROUGH-HOLES IN CATHODES | 2.00 | Feb / 06 / 20 | fr / Feb / 09 / 20 | 92 | BILL, EUGENE |
| 94 | DEVELOP SYSTEM FOR INCLUDING THROUGH-HOLES | 2.00 | / Feb / 10 / 20 | tr / Feb / 11 / 20 | 93 | BILL |
| 95 | PROCURE NECESSARY PARTS | 15.00 | / Feb / 12 / 20 | tr / Mar / 04 / 20 | 94 | BILL |



| | Activity Name | Duration (Work Days) | Start Date | Finish Date | Predecessors | Resources Assigned |
|---|---|---|---|---|---|---|
| 96 | TEST HOLE CUTTING SYSTEMS | 2.00 | 1 Mar / 05 / 2 | 1 Mar / 06 / 20 | 95 | MARK, BILL |
| 97 | DOCUMENT PROCEDURES FOR INCLUSION IN CATHODE CONSTRUCTION MANUAL | 2.00 | 1 Mar / 09 / 2 | 1 Mar / 10 / 20 | 96 | BILL |
| 98 | | | | | | |
| 99 | COMPLETE FIRST STAGE OF CATHODE CONSTRUCTION | **22.00** | **1 Mar / 11 / 2** | **1 Apr / 08 / 20** | | |
| 100 | FOLLOWING CONSTRUCTION DOCUMENT, CONSTRUCT 2 MICRON BOARDS | 6.00 | 1 Mar / 11 / 2 | 1 Mar / 18 / 20 | | BRIAN, MARK |
| 101 | FOLLOWING CONSTRUCTION DOCUMENT, CONSTRUCT 5 MICRON BOARDS | 10.00 | 1 Mar / 19 / 2 | 1 Apr / 01 / 20 | 100 | BRIAN, MARK |
| 102 | MEASURE SURFACE FLATNESS OF ALL CATHODE BOARDS | 6.00 | 1 Apr / 02 / 2 | 1 Apr / 09 / 20 | 101 | MICAH |
| 103 | | | | | | |
| 104 | MAKE DECISION ON FINAL CATHODE COPPER THICKNESS | **2.00** | **1 Mar / 19 / 2** | **1 Mar / 20 / 20** | | |
| 105 | BASED ON CONSTRUCTION LESSONS, DECIDE BETWEEN 2 MICRONS AND 5 MICRON BOARDS | 2.00 | 1 Mar / 19 / 2 | 1 Mar / 20 / 20 | | DEC |
| 106 | | | | | | |
| 107 | COMPLETE CATHODE ORDER FOR FULL-SCALE PROTOTYPE | **40.00** | **1 Jan / 26 / 2** | **1 Mar / 20 / 20** | | |
| 108 | UPDATE CATHODE DESIGN DRAWINGS TO ACCOUNT FOR STRETCHING | 10.00 | 1 Jan / 26 / 2 | 1 Feb / 06 / 20 | | ROGER |
| 109 | COMPLETE ORDER WITH ALLFLEX FOR FULL-SCALE PROTOTYPE BOARDS | 15.00 | 1 Feb / 09 / 2 | 1 Feb / 27 / 20 | 108 | ROGER |
| 110 | CARRY OUT QA MEASUREMENTS ON SECOND ORDER OF 2 MICRON BOARDS | 5.00 | 1 Mar / 02 / 2 | 1 Mar / 06 / 20 | 109 | FERNANDO, HERUN |
| 111 | CARRY OUT QA MEASUREMENTS ON SECOND ORDER OF 5 MICRON BOARDS | 5.00 | 1 Mar / 09 / 2 | 1 Mar / 13 / 20 | 110 | FERNANDO, HERUN |
| 112 | PREPARE DOCUMENT OF MEASUREMENTS AND FINDINGS | 5.00 | 1 Mar / 16 / 2 | 1 Mar / 20 / 20 | 111 | FERNANDO, HERUN |
| 113 | | | | | | |
| 114 | COMPLETE SECOND STAGE OF CATHODE CONSTRUCTION | **40.00** | **1 Mar / 09 / 2** | **1 May / 01 / 20** | | |
| 115 | FOLLOWING CONSTRUCTION DOCUMENT, CONSTRUCT ALL REMAINING 2 MICRON BOARDS | 15.00 | 1 Mar / 09 / 2 | 1 Mar / 27 / 20 | | BRIAN, MARK |
| 116 | FOLLOWING CONSTRUCTION DOCUMENT, CONSTRUCT ALL REMAINING 5 MICRON BOARDS | 15.00 | 1 Mar / 30 / 2 | 1 Apr / 17 / 20 | 115 | BRIAN, MARK |
| 117 | MEASURE SURFACE FLATNESS OF ALL CATHODE BOARDS | 10.00 | 1 Apr / 20 / 2 | 1 May / 01 / 20 | 116 | MARK, MICAH |