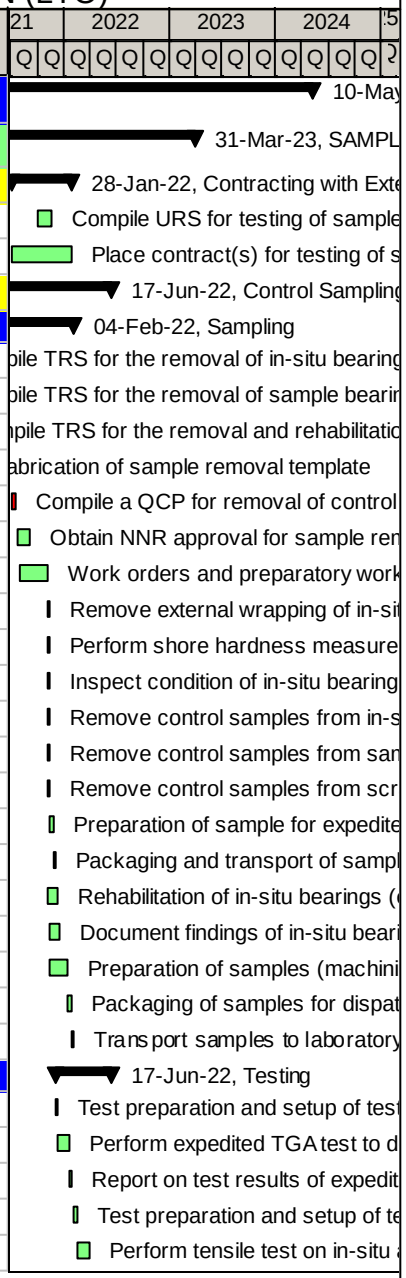
# RE-QUALIFICATION OF ASEISMIC BEARINGS FOR LONG TERM OPERATION (LTO)

| Activity ID | Activity Name | Original Duration | Start | Finish |
|---|---|---|---|---|
| **RE-QUALIFICATION OF ASEISMIC BEARINGS FOR LONG TERM OPE** | | 847 | 05-Oct-20 | 10-May-24 |
| **SAMPLING AND TESTING** | | 582 | 05-Oct-20 | 31-Mar-23 |
| **Contracting with External Service Providers** | | 131 | 05-Jul-21 | 28-Jan-22 |
| ST-CNT-100 | Compile URS for testing of samples | 35 | 04-Oct-21* | 19-Nov-21 |
| ST-CNT-200 | Place contract(s) for testing of samples | 131 | 05-Jul-21 | 28-Jan-22 |
| **Control Sampling and Testing** | | 395 | 05-Oct-20 | 17-Jun-22 |
| **Sampling** | | 306 | 05-Oct-20 | 04-Feb-22 |
| ST-CS-100 | Compile TRS for the removal of in-situ bearing samples | 20 | 05-Oct-20* | 30-Oct-20 |
| ST-CS-200 | Compile TRS for the removal of sample bearing samples | 20 | 05-Oct-20* | 30-Oct-20 |
| ST-CS-300 | Compile TRS for the removal and rehabilitation of in-situ bearing external wrapping | 20 | 02-Nov-20* | 27-Nov-20 |
| ST-CS-500 | Fabrication of sample removal template | 10 | 08-Feb-21* | 19-Feb-21 |
| ST-CS-400 | Compile a QCP for removal of control samples | 15 | 05-Jul-21* | 23-Jul-21 |
| ST-CS-600 | Obtain NNR approval for sample removal | 29 | 26-Jul-21 | 03-Sep-21 |
| ST-CS-700 | Work orders and preparatory work for sample removal | 69 | 02-Aug-21* | 08-Nov-21 |
| ST-CS-800 | Remove external wrapping of in-situ bearings | 4 | 09-Nov-21 | 12-Nov-21 |
| ST-CS-900 | Perform shore hardness measurements on wrapping material | 4 | 09-Nov-21 | 12-Nov-21 |
| ST-CS-1000 | Inspect condition of in-situ bearing behind external wrapping (photographs) | 4 | 09-Nov-21 | 12-Nov-21 |
| ST-CS-1100 | Remove control samples from in-situ bearings | 4 | 09-Nov-21 | 12-Nov-21 |
| ST-CS-1200 | Remove control samples from sample bearings | 4 | 09-Nov-21 | 12-Nov-21 |
| ST-CS-1300 | Remove control samples from scrap sample bearings | 4 | 09-Nov-21 | 12-Nov-21 |
| ST-CS-1600 | Preparation of sample for expedited TGA test to determine percentage carbon black | 10 | 15-Nov-21 | 26-Nov-21 |
| ST-CS-1700 | Packaging and transport of sample for expedited TGA test to Eskom testing facility | 5 | 29-Nov-21 | 03-Dec-21 |
| ST-CS-1400 | Rehabilitation of in-situ bearings (external wrapping) | 24 | 09-Nov-21 | 10-Dec-21 |
| ST-CS-1500 | Document findings of in-situ bearing inspection | 23 | 15-Nov-21 | 15-Dec-21 |
| ST-CS-1800 | Preparation of samples (machining and micro-slicing) | 28 | 15-Nov-21 | 14-Jan-22 |
| ST-CS-1900 | Packaging of samples for dispatch to laboratory | 10 | 17-Jan-22 | 28-Jan-22 |
| ST-CS-2000 | Transport samples to laboratory | 5 | 31-Jan-22 | 04-Feb-22 |
| **Testing** | | 117 | 06-Dec-21 | 17-Jun-22 |
| ST-CT-100 | Test preparation and setup of test apparatus for expedited TGA test | 5 | 06-Dec-21 | 10-Dec-21 |
| ST-CT-200 | Perform expedited TGA test to determine percentage carbon black | 13 | 13-Dec-21 | 21-Jan-22 |
| ST-CT-300 | Report on test results of expedited TGA test | 5 | 24-Jan-22 | 28-Jan-22 |
| ST-CT-400 | Test preparation and setup of test apparatus | 10 | 07-Feb-22 | 18-Feb-22 |
| ST-CT-500 | Perform tensile test on in-situ and sample bearing (large and small specimens) control sa | 29 | 21-Feb-22 | 01-Apr-22 |



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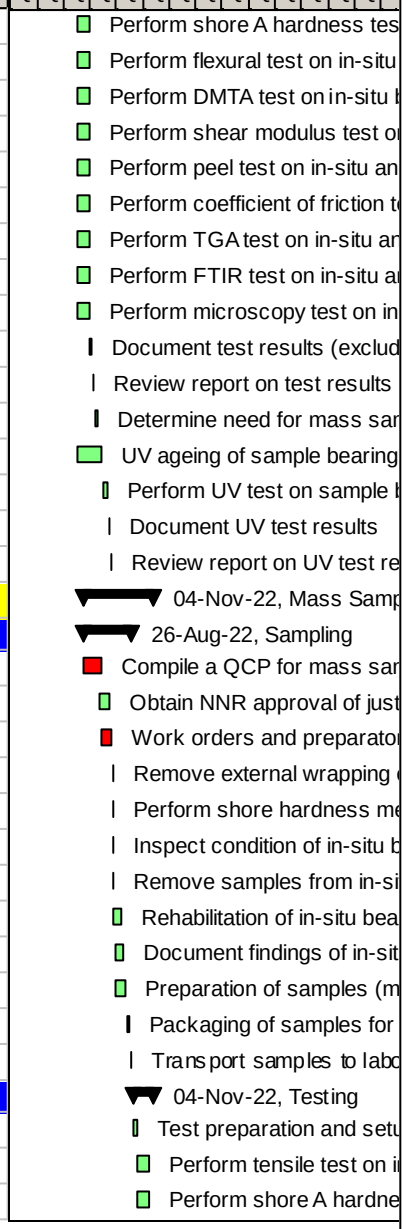
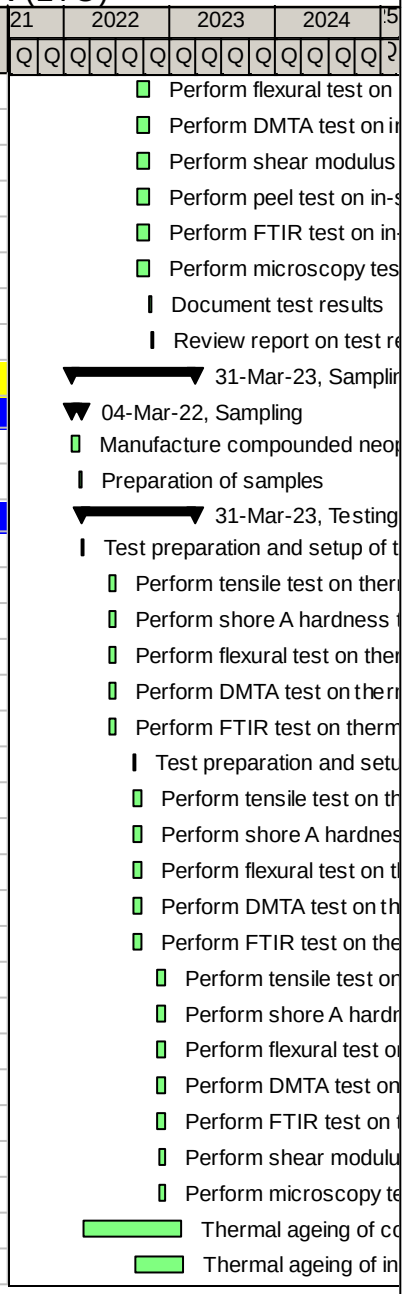
| Activity ID | Activity Name | Original Duration | Start | Finish |
|---|---|---|---|---|
| ST-CT-600 | Perform shore A hardness test on in-situ bearing control samples | 29 | 21-Feb-22 | 01-Apr-22 |
| ST-CT-700 | Perform flexural test on in-situ and sample bearing control samples | 29 | 21-Feb-22 | 01-Apr-22 |
| ST-CT-800 | Perform DMTA test on in-situ bearing control samples | 29 | 21-Feb-22 | 01-Apr-22 |
| ST-CT-900 | Perform shear modulus test on in-situ and sample bearing control samples | 29 | 21-Feb-22 | 01-Apr-22 |
| ST-CT-1000 | Perform peel test on in-situ and sample bearing (friction-couple bearing) control samples | 29 | 21-Feb-22 | 01-Apr-22 |
| ST-CT-1100 | Perform coefficient of friction test on sample bearing control samples | 29 | 21-Feb-22 | 01-Apr-22 |
| ST-CT-1200 | Perform TGA test on in-situ and sample bearing control samples | 29 | 21-Feb-22 | 01-Apr-22 |
| ST-CT-1300 | Perform FTIR test on in-situ and sample bearing control samples | 29 | 21-Feb-22 | 01-Apr-22 |
| ST-CT-1400 | Perform microscopy test on in-situ and sample bearing control samples | 29 | 21-Feb-22 | 01-Apr-22 |
| ST-CT-1700 | Document test results (excluding UV test) | 5 | 04-Apr-22 | 08-Apr-22 |
| ST-CT-1800 | Review report on test results (excluding UV test) | 4 | 11-Apr-22 | 14-Apr-22 |
| ST-CT-1900 | Determine need for mass sampling and sample size needed | 8 | 19-Apr-22* | 29-Apr-22 |
| ST-CT-1500 | UV ageing of sample bearing control sample for 3 months | 55 | 21-Feb-22 | 13-May-22 |
| ST-CT-1600 | Perform UV test on sample bearing control sample | 15 | 16-May-22 | 03-Jun-22 |
| ST-CT-2000 | Document UV test results | 5 | 06-Jun-22 | 10-Jun-22 |
| ST-CT-2100 | Review report on UV test results | 4 | 13-Jun-22 | 17-Jun-22 |
| **Mass Sampling and Testing** | | 163 | 14-Mar-22 | 04-Nov-22 |
| **Sampling** | | 113 | 14-Mar-22 | 26-Aug-22 |
| ST-MS-100 | Compile a QCP for mass sampling | 40 | 14-Mar-22* | 13-May-22 |
| ST-MS-200 | Obtain NNR approval of justification for continued testing | 29 | 03-May-22 | 10-Jun-22 |
| ST-MS-300 | Work orders and preparatory work for sample removal | 29 | 09-May-2 | 17-Jun-22 |
| ST-MS-400 | Remove external wrapping of in-situ bearings | 5 | 20-Jun-22 | 24-Jun-22 |
| ST-MS-500 | Perform shore hardness measurements on wrapping material | 5 | 20-Jun-22 | 24-Jun-22 |
| ST-MS-600 | Inspect condition of in-situ bearing behind external wrapping (photographs) | 5 | 20-Jun-22 | 24-Jun-22 |
| ST-MS-700 | Remove samples from in-situ bearings | 5 | 20-Jun-22 | 24-Jun-22 |
| ST-MS-800 | Rehabilitation of in-situ bearings (external wrapping) | 25 | 20-Jun-22 | 22-Jul-22 |
| ST-MS-900 | Document findings of in-situ bearing inspection | 25 | 27-Jun-22 | 29-Jul-22 |
| ST-MS-1000 | Preparation of samples (machining and micro-slicing) | 30 | 27-Jun-22 | 05-Aug-22 |
| ST-MS-1100 | Packaging of samples for dispatch to laboratory | 9 | 08-Aug-22 | 19-Aug-22 |
| ST-MS-1200 | Transport samples to laboratory | 5 | 22-Aug-22 | 26-Aug-22 |
| **Testing** | | 50 | 29-Aug-22 | 04-Nov-22 |
| ST-MT-100 | Test preparation and setup of test apparatus | 10 | 29-Aug-22 | 09-Sep-22 |
| ST-MT-200 | Perform tensile test on in-situ bearing samples | 30 | 12-Sep-22 | 21-Oct-22 |
| ST-MT-300 | Perform shore A hardness test on in-situ bearing samples | 30 | 12-Sep-22 | 21-Oct-22 |



# RE-QUALIFICATION OF ASEISMIC BEARINGS FOR LONG TERM OPERATION (LTO)

| Activity ID | Activity Name | Original Duration | Start | Finish |
|---|---|---|---|---|
| ST-MT-400 | Perform flexural test on in-situ bearing samples | 30 | 12-Sep-22 | 21-Oct-22 |
| ST-MT-500 | Perform DMTA test on in-situ bearing samples | 30 | 12-Sep-22 | 21-Oct-22 |
| ST-MT-600 | Perform shear modulus test on in-situ bearing samples | 30 | 12-Sep-22 | 21-Oct-22 |
| ST-MT-700 | Perform peel test on in-situ bearing samples | 30 | 12-Sep-22 | 21-Oct-22 |
| ST-MT-800 | Perform FTIR test on in-situ bearing samples | 30 | 12-Sep-22 | 21-Oct-22 |
| ST-MT-900 | Perform microscopy test on in-situ bearing samples | 30 | 12-Sep-22 | 21-Oct-22 |
| ST-MT-1000 | Document test results | 5 | 24-Oct-22 | 28-Oct-22 |
| ST-MT-1100 | Review report on test results | 5 | 31-Oct-22 | 04-Nov-22 |
| **Sampling and Testing of Thermally-Aged Compounded Neoprene** | | 281 | 31-Jan-22 | 31-Mar-23 |
| **Sampling** | | 25 | 31-Jan-22 | 04-Mar-22 |
| ST-TS-100 | Manufacture compounded neoprene material | 20 | 31-Jan-22 | 25-Feb-22 |
| ST-TS-200 | Preparation of samples | 5 | 28-Feb-22 | 04-Mar-22 |
| **Testing** | | 256 | 07-Mar-22 | 31-Mar-23 |
| ST-TT-100 | Test preparation and setup of test apparatus | 5 | 07-Mar-22 | 11-Mar-22 |
| ST-TT-300 | Perform tensile test on thermally-aged samples at 3 months | 19 | 06-Jun-22* | 01-Jul-22 |
| ST-TT-400 | Perform shore A hardness test on thermally-aged samples at 3 months | 19 | 06-Jun-22* | 01-Jul-22 |
| ST-TT-500 | Perform flexural test on thermally-aged samples at 3 months | 19 | 06-Jun-22* | 01-Jul-22 |
| ST-TT-600 | Perform DMTA test on thermally-aged samples at 3 months | 19 | 06-Jun-22* | 01-Jul-22 |
| ST-TT-700 | Perform FTIR test on thermally-aged samples at 3 months | 19 | 06-Jun-22* | 01-Jul-22 |
| ST-TT-2500 | Test preparation and setup of test apparatus | 5 | 29-Aug-22 | 02-Sep-22 |
| ST-TT-800 | Perform tensile test on thermally-aged samples at 6 months | 20 | 29-Aug-22* | 23-Sep-22 |
| ST-TT-900 | Perform shore A hardness test on thermally-aged samples at 6 months | 20 | 29-Aug-22* | 23-Sep-22 |
| ST-TT-1000 | Perform flexural test on thermally-aged samples at 6 months | 20 | 29-Aug-22* | 23-Sep-22 |
| ST-TT-1100 | Perform DMTA test on thermally-aged samples at 6 months | 20 | 29-Aug-22* | 23-Sep-22 |
| ST-TT-1200 | Perform FTIR test on thermally-aged samples at 6 months | 20 | 29-Aug-22* | 23-Sep-22 |
| ST-TT-1300 | Perform tensile test on thermally-aged samples at 9 months | 19 | 21-Nov-22* | 15-Dec-22 |
| ST-TT-1400 | Perform shore A hardness test on thermally-aged samples at 9 months | 19 | 21-Nov-22* | 15-Dec-22 |
| ST-TT-1500 | Perform flexural test on thermally-aged samples at 9 months | 19 | 21-Nov-22* | 15-Dec-22 |
| ST-TT-1600 | Perform DMTA test on thermally-aged samples at 9 months | 19 | 21-Nov-22* | 15-Dec-22 |
| ST-TT-1700 | Perform FTIR test on thermally-aged samples at 9 months | 19 | 21-Nov-22* | 15-Dec-22 |
| ST-TT-2700 | Perform shear modulus test on thermally-aged in-situ bearing samples at 3 months | 14 | 28-Nov-22* | 15-Dec-22 |
| ST-TT-2800 | Perform microscopy test on thermally-aged in-situ bearing samples at 3 months | 14 | 28-Nov-22* | 15-Dec-22 |
| ST-TT-200 | Thermal ageing of compounded neoprene for 12 months | 217 | 14-Mar-22 | 10-Feb-23 |
| ST-TT-2600 | Thermal ageing of in-situ bearing samples (from mass sampling) for 6 months | 104 | 05-Sep-22 | 17-Feb-23 |



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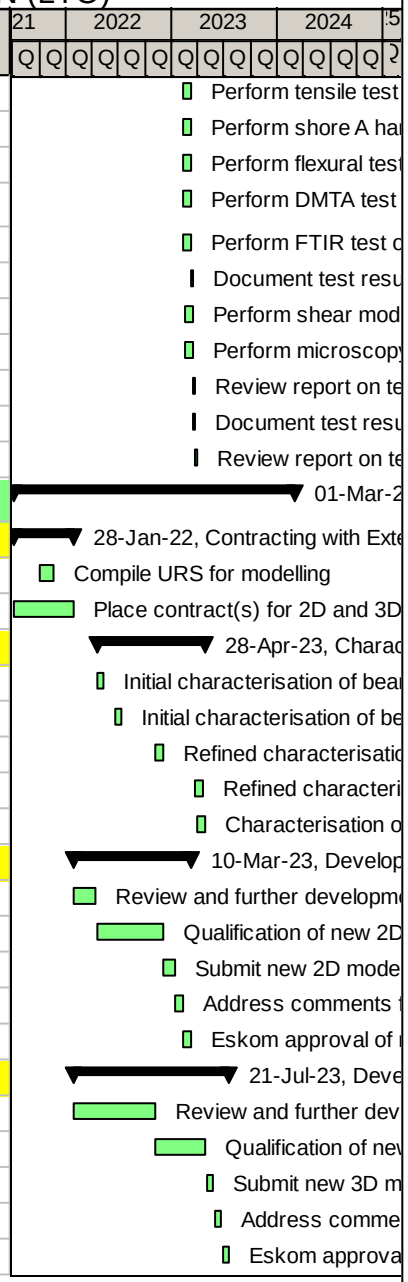
| Activity ID | Activity Name | Original Duration | Start | Finish |
|---|---|---|---|---|
| ST-TT-1800 | Perform tensile test on thermally-aged samples at 12 months | 20 | 13-Feb-23 | 10-Mar-23 |
| ST-TT-1900 | Perform shore A hardness test on thermally-aged samples at 12 months | 20 | 13-Feb-23 | 10-Mar-23 |
| ST-TT-2000 | Perform flexural test on thermally-aged samples at 12 months | 20 | 13-Feb-23 | 10-Mar-23 |
| ST-TT-2100 | Perform DMTA test on thermally-aged samples at 12 months | 20 | 13-Feb-23 | 10-Mar-23 |
| ST-TT-2200 | Perform FTIR test on thermally-aged samples at 12 months | 20 | 13-Feb-23 | 10-Mar-23 |
| ST-TT-2300 | Document test results | 5 | 13-Mar-23 | 17-Mar-23 |
| ST-TT-2900 | Perform shear modulus test on thermally-aged in-situ bearing samples at 6 months | 20 | 20-Feb-23* | 17-Mar-23 |
| ST-TT-3000 | Perform microscopy test on thermally-aged in-situ bearing samples at 6 months | 20 | 20-Feb-23* | 17-Mar-23 |
| ST-TT-2400 | Review report on test results | 4 | 20-Mar-23 | 24-Mar-23 |
| ST-TT-3100 | Document test results | 4 | 20-Mar-23 | 24-Mar-23 |
| ST-TT-3200 | Review report on test results | 5 | 27-Mar-23 | 31-Mar-23 |
| **MODELLING** | | 627 | 05-Jul-21 | 01-Mar-24 |
| **Contracting with External Service Providers** | | 131 | 05-Jul-21 | 28-Jan-22 |
| M-CNT-100 | Compile URS for modelling | 35 | 04-Oct-21* | 19-Nov-21 |
| M-CNT-200 | Place contract(s) for 2D and 3D modelling | 131 | 05-Jul-21 | 28-Jan-22 |
| **Characterisation of Aseismic Bearing Properties** | | 245 | 19-Apr-22 | 28-Apr-23 |
| M-ABP-100 | Initial characterisation of bearing properties up to 40 yrs using control sample test results | 17 | 19-Apr-22 | 13-May-22 |
| M-ABP-200 | Initial characterisation of bearing properties up to 40 yrs using control sample test results | 20 | 20-Jun-22 | 15-Jul-22 |
| M-ABP-300 | Refined characterisation of bearing properties up to 40 yrs using mass sample test results | 20 | 07-Nov-22 | 02-Dec-22 |
| M-ABP-400 | Refined characterisation of bearing properties up to 40 yrs using thermally-aged material | 18 | 27-Mar-23 | 21-Apr-23 |
| M-ABP-500 | Characterisation of bearing properties up to 60 yrs using thermally-aged material test resu | 17 | 03-Apr-23 | 28-Apr-23 |
| **Development of 2D Model** | | 267 | 31-Jan-22 | 10-Mar-23 |
| M-2D-100 | Review and further development of existing 2D model | 53 | 31-Jan-22 | 14-Apr-22 |
| M-2D-200 | Qualification of new 2D model | 160 | 19-Apr-22 | 02-Dec-22 |
| M-2D-300 | Submit new 2D model to Eskom for review and comments | 14 | 05-Dec-22 | 13-Jan-23 |
| M-2D-400 | Address comments from reviewers | 20 | 16-Jan-23 | 10-Feb-23 |
| M-2D-500 | Eskom approval of new 2D model | 20 | 13-Feb-23 | 10-Mar-23 |
| **Development of 3D Model** | | 356 | 31-Jan-22 | 21-Jul-23 |
| M-3D-100 | Review and further development of existing 3D model | 193 | 31-Jan-22 | 04-Nov-22 |
| M-3D-200 | Qualification of new 3D model | 105 | 07-Nov-22 | 28-Apr-23 |
| M-3D-300 | Submit new 3D model to Eskom for review and comments | 19 | 02-May-23 | 26-May-23 |
| M-3D-400 | Address comments from reviewers | 19 | 29-May-23 | 23-Jun-23 |
| M-3D-500 | Eskom approval of new 3D model | 20 | 26-Jun-23 | 21-Jul-23 |




Actual Work
Remaining Work
Critical Remaining ...
Milestone



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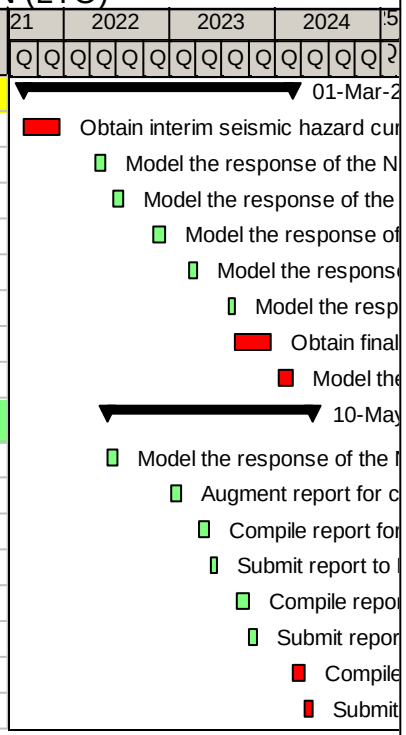
| Activity ID | Activity Name | Original Duration | Start | Finish |
|---|---|---|---|---|
| **Modelling of Data** | | 598 | 16-Aug-21 | 01-Mar-24 |
| M-MDL-100 | Obtain interim seismic hazard curve (SSHAC) | 87 | 16-Aug-21* | 15-Dec-21 |
| M-MDL-200 | Model the response of the NI using an SDOF system and control sample test results (exc | 27 | 19-Apr-22 | 27-May-22 |
| M-MDL-300 | Model the response of the NI using an SDOF system and control sample test results (inc | 30 | 20-Jun-22 | 29-Jul-22 |
| M-MDL-400 | Model the response of the NI using an SDOF system and mass sample test results | 29 | 07-Nov-22 | 15-Dec-22 |
| M-MDL-500 | Model the response of the NI using 2D model | 18 | 13-Mar-23 | 06-Apr-23 |
| M-MDL-600 | Model the response of the NI using 3D model and interim seismic hazard curve | 19 | 24-Jul-23 | 18-Aug-23 |
| M-MDL-700 | Obtain final seismic hazard curve (SSHAC) | 89 | 14-Aug-23* | 15-Dec-23 |
| M-MDL-800 | Model the response of the NI using 3D model and final seismic hazard curve | 37 | 11-Jan-24 | 01-Mar-24 |
| **REPORTING OF MODELLING RESULTS INTO LTO PROGRAMME** | | 466 | 30-May-22 | 10-May-24 |
| LTO-100 | Model the response of the NI using 3D model and final seismic hazard curve | 29 | 30-May-22 | 08-Jul-22 |
| LTO-200 | Augment report for continued operation using results from SDOF modelling (mass sampl | 25 | 09-Jan-23 | 10-Feb-23 |
| LTO-300 | Compile report for LTO using results from 2D modelling | 27 | 11-Apr-23 | 19-May-23 |
| LTO-600 | Submit report to NNR - 2D model | 19 | 22-May-23 | 15-Jun-23 |
| LTO-400 | Compile report for LTO using results from 3D modelling - interim seismic curve | 29 | 21-Aug-23 | 29-Sep-23 |
| LTO-700 | Submit report to NNR - 3D model with interim seismic curve | 20 | 02-Oct-23 | 27-Oct-23 |
| LTO-500 | Compile report for LTO using results from 3D modelling - final seismic curve | 30 | 04-Mar-24 | 12-Apr-24 |
| LTO-800 | Submit report to NNR - 3D model with final seismic curve | 20 | 15-Apr-24 | 10-May-24 |




Actual Work | Critical Remaining ... | Remaining Work | Milestone



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