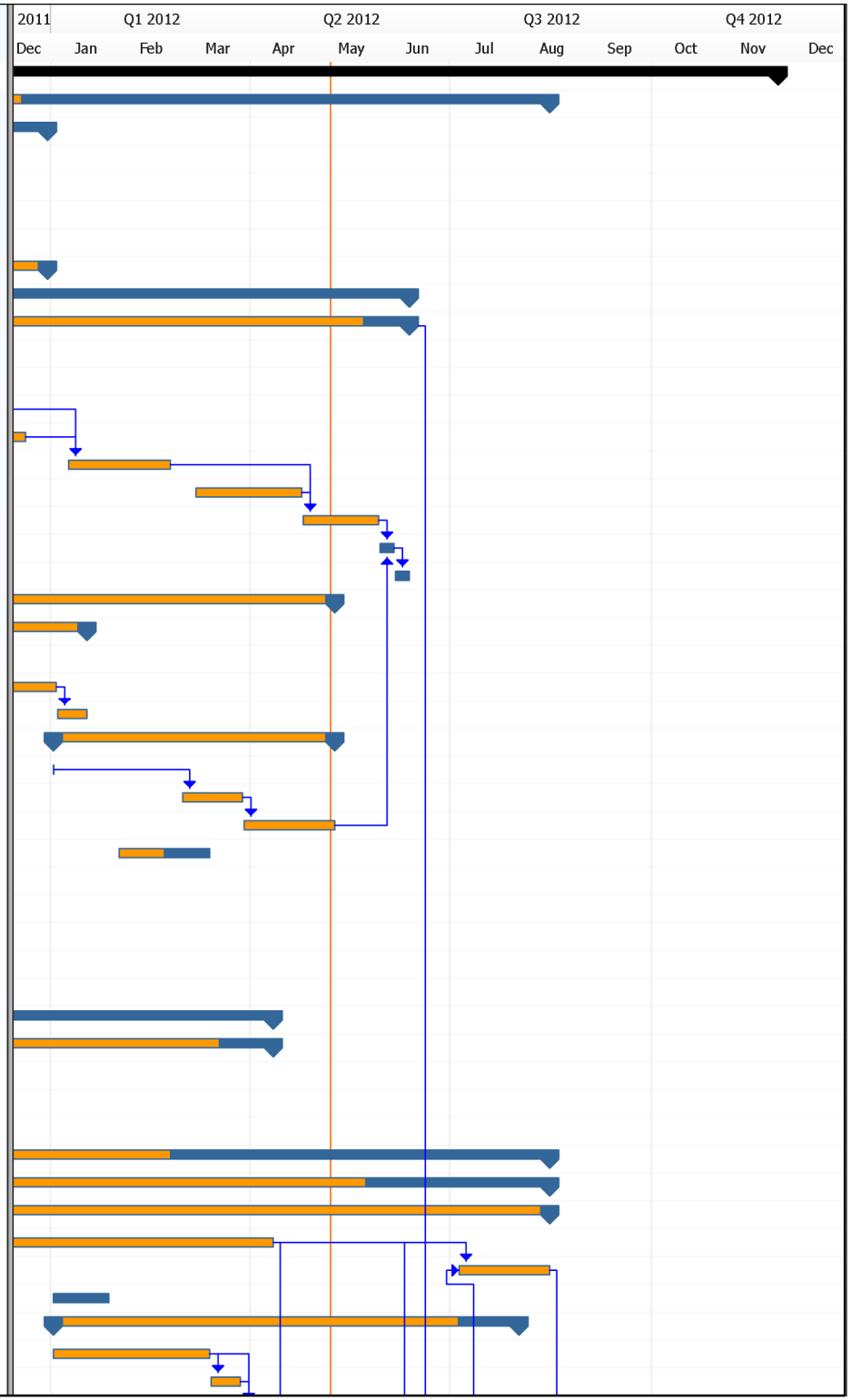
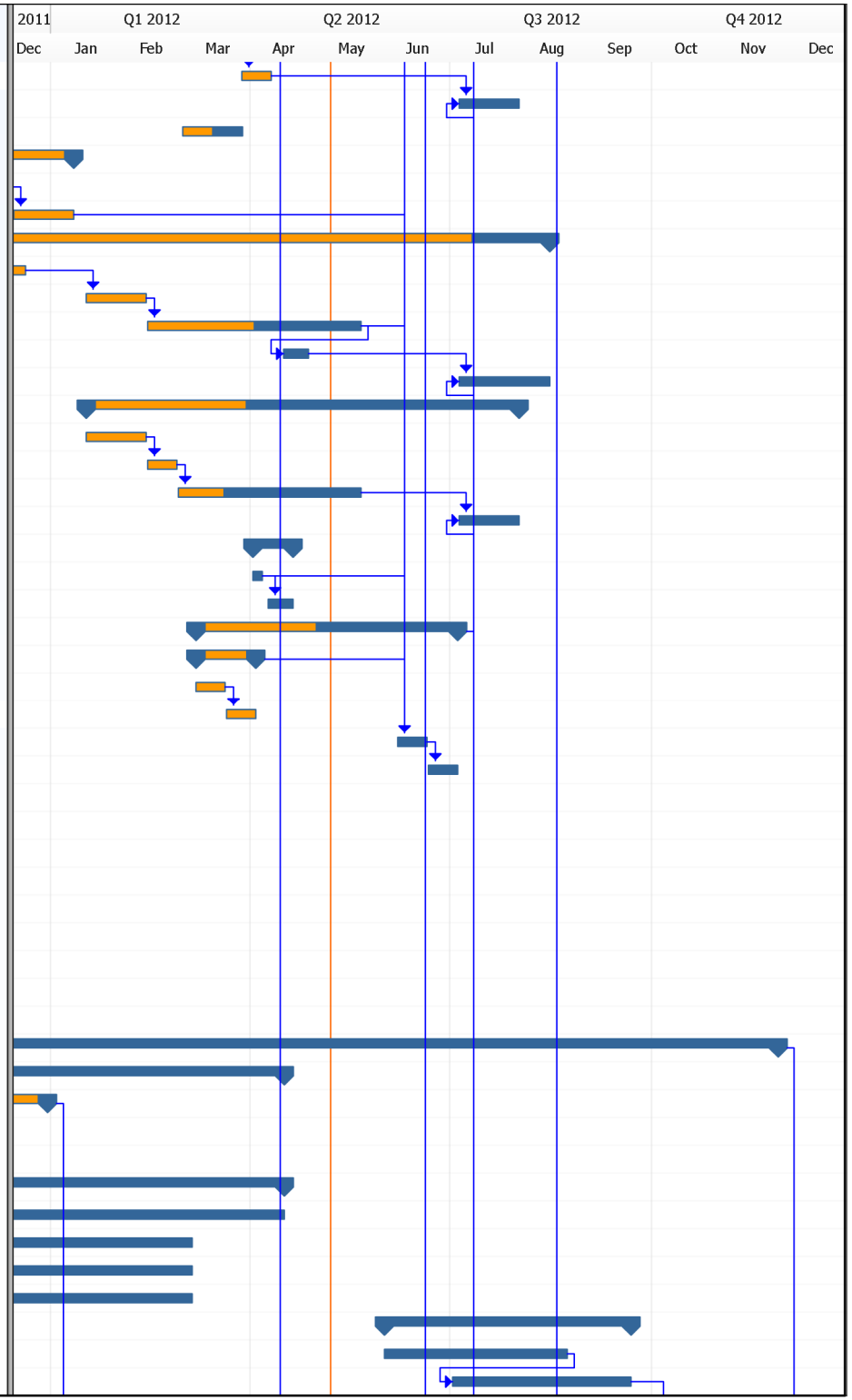
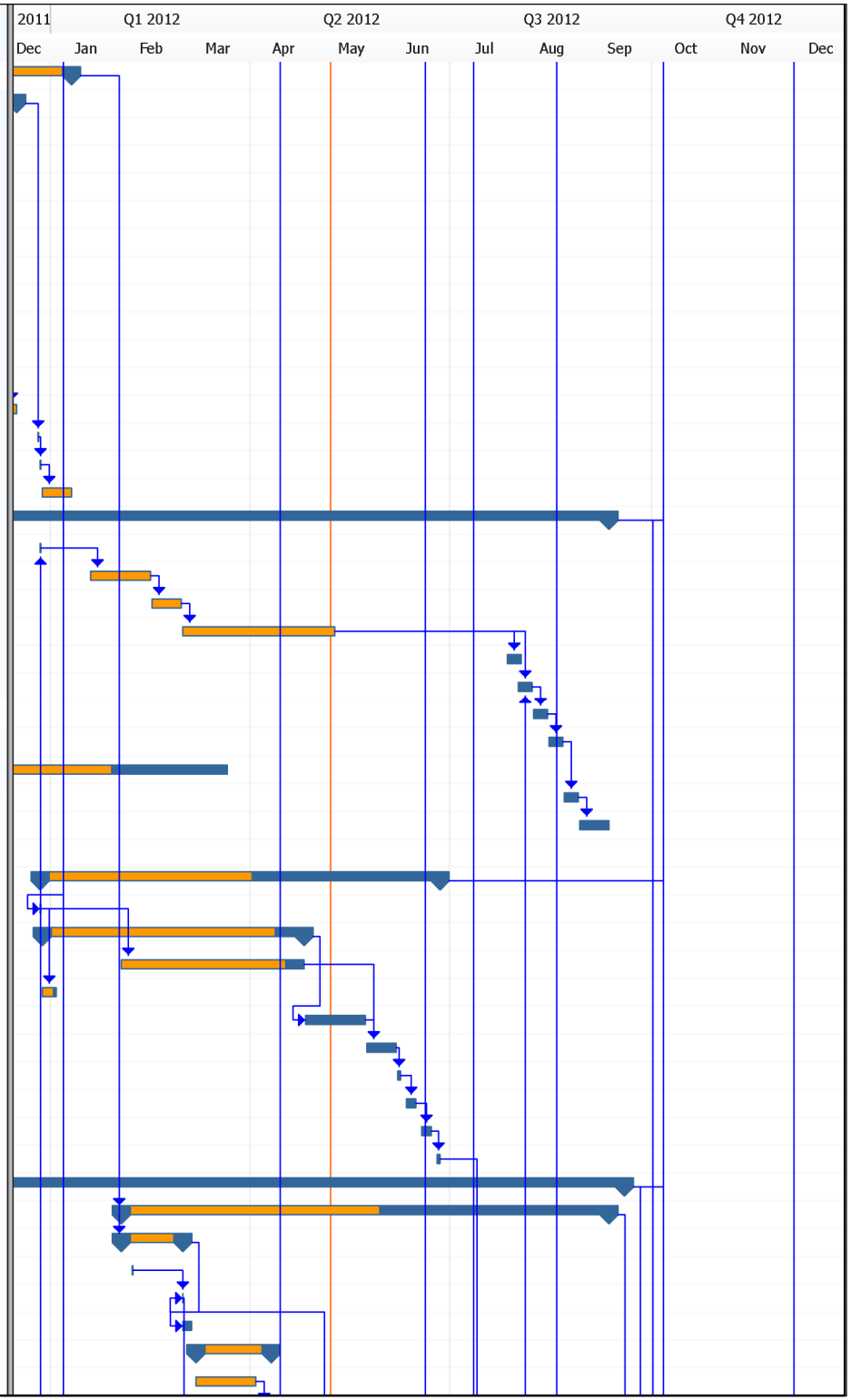
Name	Work	Duration	Start Date	Due Date	Committed Date
COUPP	26764.52 h	516 d	12/07/10	11/27/12	
Area 1: Chamber Components	7577.11 h	442 d	12/07/10	08/15/12	
Inner Vessel	872 h	279 d	12/07/10	12/30/11	
COUPP-60 -- IV	8 h	1 d	12/07/10	12/07/10	
COUPP-4 -- IV	8 h	1 d	12/07/10	12/07/10	
COUPP-4-redux -- IV	24 h	1 d	12/07/10	12/07/10	
Acoustic Chamber -- IV	32 h	1 d	12/07/10	12/07/10	
Pion and Neutron Chambers -- IV	800 h	40 d	11/07/11	12/30/11	
Pressure Vessel	2545.11 h	396 d	12/07/10	06/12/12	
COUPP-60 -- PV	817.11 h	248 d	07/01/11	06/12/12	
Drawings of new OV	192 h	60 d	07/01/11	09/22/11	
Bid package	90 h	30 d	09/23/11	11/03/11	
Competitive Bid	160 h	20 d	11/09/11	12/06/11	
Vendor selection	8 h	10 d	12/07/11	12/20/11	
Vendor design package	28 h	7 w	01/09/12	02/24/12	
Material screening	280 h	7 w	03/07/12	04/24/12	
Construction	11.11 h	5 w	04/25/12	05/29/12	
Acceptance test at vendor	8 h	5 d	05/30/12	06/05/12	
Ship to SNOLAB Surface	40 h	5 d	06/06/12	06/12/12	
Pressure Vessel Window Assembly	480 h	114 d	12/02/11	05/09/12	
Back flanges	56 h	33 d	12/02/11	01/17/12	
Drawings	8 h	1 d	12/02/11	12/02/11	
Material	8 h	20 d	12/07/11	01/03/12	
Machining	40 h	10 d	01/04/12	01/17/12	
Fused Silica	408 h	93 d	01/02/12	05/09/12	
Procurement- sample	8 h	1 d	01/02/12	01/02/12	
Counting	160 h	20 d	03/01/12	03/28/12	
Procurement- final	240 h	6 w	03/29/12	05/09/12	
Gaskets & O rings	16 h	30 d	02/01/12	03/13/12	
COUPP-4 -- PV	8 h	1 d	12/07/10	12/07/10	
COUPP-4-redux -- PV	1144 h	136 d	12/07/10	06/14/11	
Acoustic Chamber -- PV	56 h	1 d	12/07/10	12/07/10	
Pion and Neutron Chambers -- PV	40 h	1 d	12/07/10	12/07/10	
Hydraulic Control System	272 h	3 d	12/07/10	12/09/10	
Data Acquisition System	1240 h	352 d	12/07/10	04/11/12	
COUPP-60 -- DAQ	856 h	352 d	12/07/10	04/11/12	
COUPP-4 -- DAQ	8 h	1 d	12/07/10	12/07/10	
COUPP-4-redux -- DAQ	88 h	1 d	12/07/10	12/07/10	
Pion, Neutron, and Acoustic Chambers -- DA	288 h	262 d	12/07/10	12/07/11	
Optics, Imaging and Illumination	2352 h	442 d	12/07/10	08/15/12	
COUPP-60 -- Optics	2240 h	250 d	09/01/11	08/15/12	
Cameras	960 h	180 d	12/08/11	08/15/12	
Camera Evaluation	720 h	90 d	12/08/11	04/11/12	
Camera Procurement	240 h	30 d	07/05/12	08/15/12	
Lenses	160 h	20 d	01/02/12	01/27/12	
LEDs	248 h	153 d	01/02/12	08/01/12	
Design LED array	128 h	52 d	01/02/12	03/13/12	
PCB Board Fab	80 h	10 d	03/14/12	03/27/12	



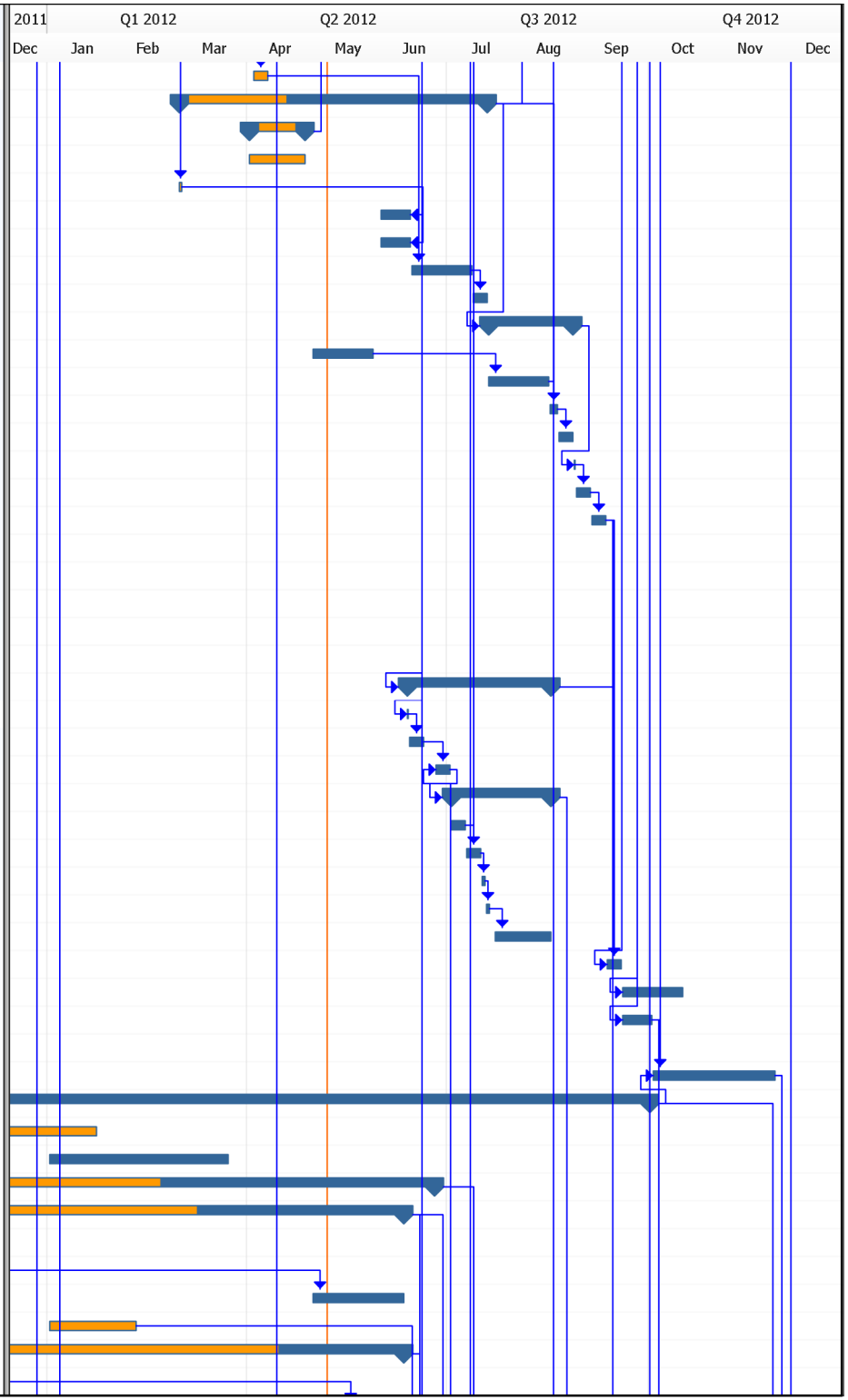
Name	Work	Duration	Start Date	Due Date	Committed Date
Stuff LED ring	8 h	10 d	03/28/12	04/10/12	
Final arrays	32 h	20 d	07/05/12	08/01/12	
LED Controllers & power supplies	8 h	20 d	03/01/12	03/28/12	
Reflector	56 h	95 d	09/01/11	01/11/12	
Design Prototype	24 h	20 d	09/01/11	09/28/11	
Build Prototype	32 h	20 d	12/15/11	01/11/12	
Camera Mounts	304 h	181 d	12/07/11	08/15/12	
Specify	80 h	10 d	12/07/11	12/20/11	
design	160 h	20 d	01/17/12	02/13/12	
prototype	40 h	70 d	02/14/12	05/21/12	
test	16 h	10 d	04/16/12	04/27/12	
build final	8 h	30 d	07/05/12	08/15/12	
Camera enclosure	296 h	142 d	01/17/12	08/01/12	
Design	16 h	20 d	01/17/12	02/13/12	
Hiumidity/temperature probe.	80 h	10 d	02/14/12	02/27/12	
Prototype	56 h	60 d	02/28/12	05/21/12	
Final production	48 h	20 d	07/05/12	08/01/12	
Cables	96 h	15 d	04/02/12	04/20/12	
Prototype	16 h	5 d	04/02/12	04/06/12	
Final	80 h	10 d	04/09/12	04/20/12	
Optical system test	208 h	86 d	03/07/12	07/04/12	
Adaptor for old OV	96 h	20 d	03/07/12	04/03/12	
Design	80 h	10 d	03/07/12	03/20/12	
Build	16 h	10 d	03/21/12	04/03/12	
Assemble	32 h	10 d	06/07/12	06/20/12	
Test	80 h	10 d	06/21/12	07/04/12	
COUPP-4 -- Optics	8 h	1 d	12/07/10	12/07/10	
COUPP-4-redux -- Optics	8 h	1 d	12/07/10	12/07/10	
Acoustic Chamber -- Optics	32 h	1 d	12/07/10	12/07/10	
Pion Chamber -- Optics	32 h	1 d	12/07/10	12/07/10	
Neutron Chamber -- Optics	32 h	1 d	12/07/10	12/07/10	
Acoustics	80 h	1 d	12/07/10	12/07/10	
Temperature Control	128 h	1 d	12/07/10	12/07/10	
High Purity Fluid System	56 h	1 d	12/07/10	12/07/10	
Computing	32 h	1 d	12/07/10	12/07/10	
Area 2: COUPP-60 Installation	8463.41 h	516 d	12/07/10	11/27/12	
Chemical Tests	3768 h	207 d	07/01/11	04/16/12	
NuMI run fall 2011	648 h	131 d	07/01/11	12/30/11	
Establish goals	8 h	1 d	07/01/11	07/01/11	
Complete run according to goals	640 h	100 d	07/01/11	11/17/11	
Make decision regarding purification	3120 h	120 d	11/01/11	04/16/12	
Establish capability with Fermilab GCMS	960 h	120 d	11/01/11	04/16/12	
Examine all previous samples to decide	720 h	90 d	11/01/11	03/05/12	
Gather old stock of CF3I for possible exc	720 h	90 d	11/01/11	03/05/12	
Negotiate with synquest for exchange of	720 h	90 d	11/01/11	03/05/12	
CF3I	960 h	81 d	06/01/12	09/21/12	
Purchase storage vessel	480 h	60 d	06/01/12	08/23/12	
Purchase CF3I	480 h	60 d	07/02/12	09/21/12	



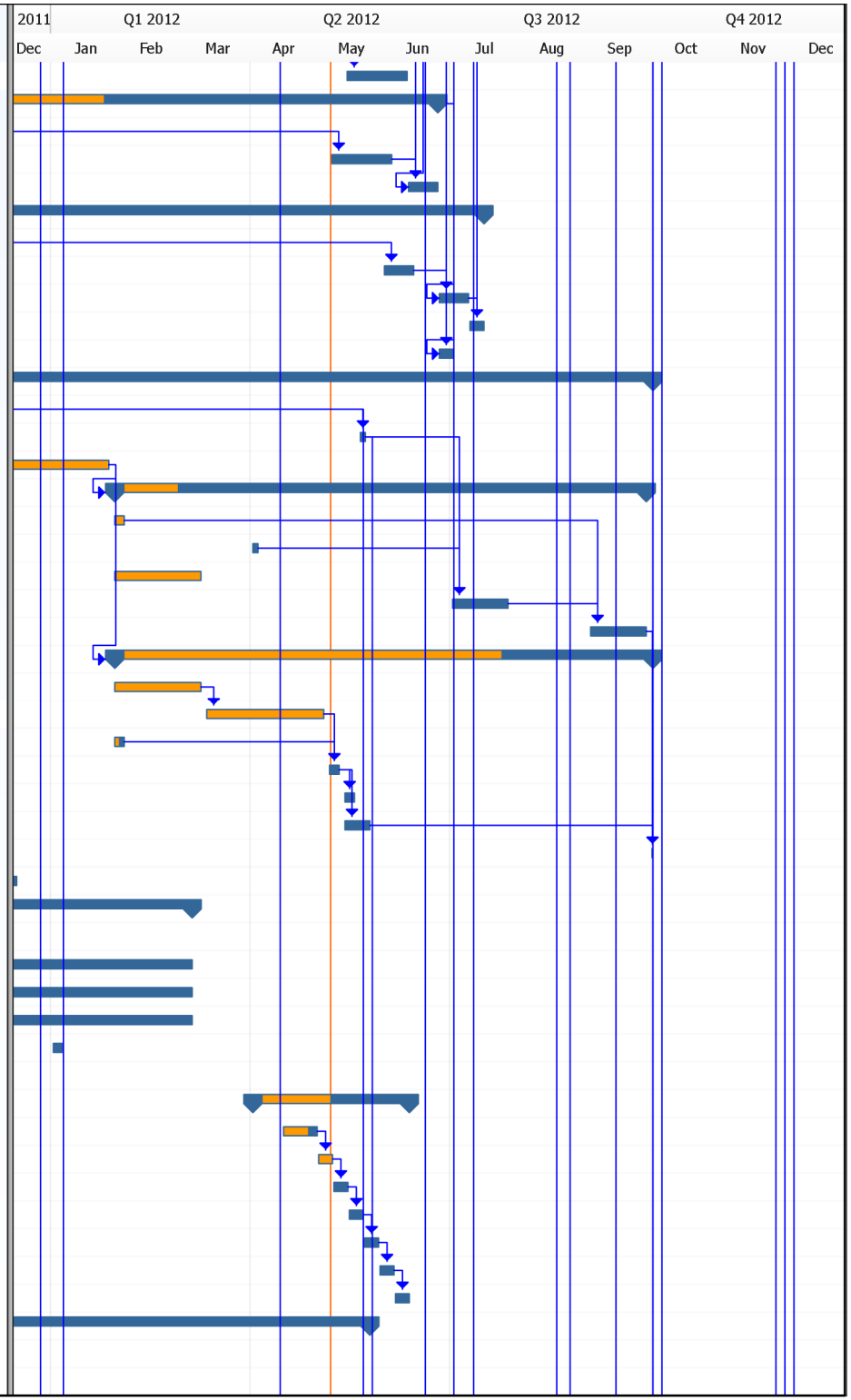
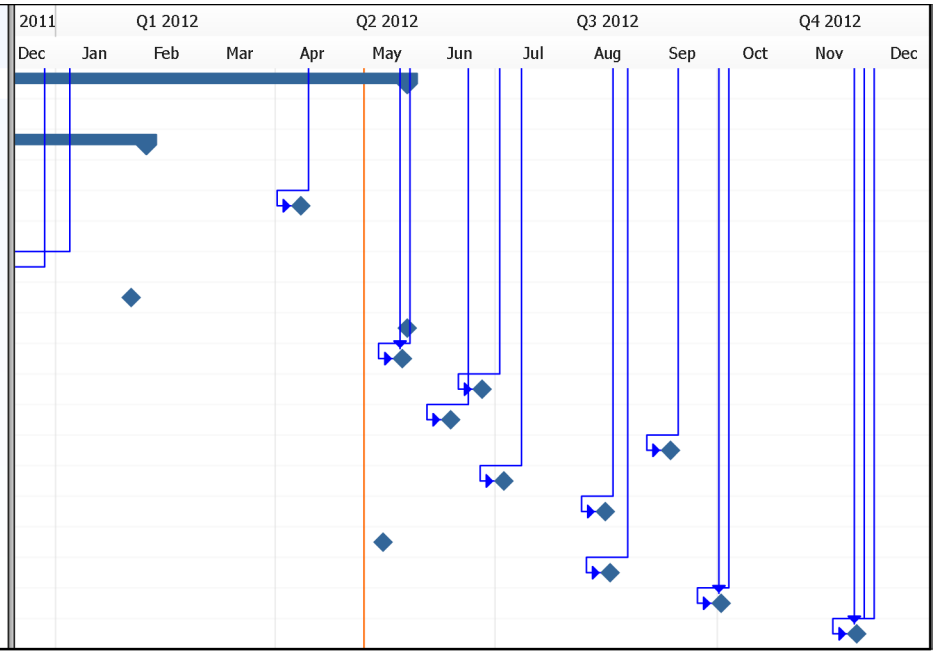
Name	Work	Duration	Start Date	Due Date	Committed Date
Disassembly of bubble chamber at NuMI	447.49 h	63 d	10/14/11	01/10/12	
Get system ready for removal	311.49 h	46 d	10/14/11	12/16/11	
Drain water from tank	6 h	3 d	11/18/11	11/22/11	
Remove camera package	12 h	2 d	11/23/11	11/24/11	
Decide on appropriate storage vessel	240 h	30 d	10/14/11	11/24/11	
Remove CF3I from bubble chamber into	11.2 h	2 d	11/25/11	11/28/11	
Hook up stinger and transfer line	3.2 h	1 d	11/25/11	11/25/11	
Transfer CF3I	8 h	1 d	11/28/11	11/28/11	
Drain water from bubble chamber into ap	16 h	1 d	11/29/11	11/29/11	
Use existing infrastructure from CF3	8 h	1 d	11/29/11	11/29/11	
Drain water down to 1 liter at bottom	8 h	1 d	11/29/11	11/29/11	
Drain glycol into degassing tank	8 h	1 d	11/30/11	11/30/11	
Disconnect process lines to isolate the C	18.29 h	5 d	12/12/11	12/16/11	
Move water tank down tunnel	24 h	1 d	12/26/11	12/26/11	
Get OV/IV out of the tunnel to D0	32 h	1 d	12/27/11	12/27/11	
Disassembly of OV/IV/ Water Tank	80 h	10 d	12/28/11	01/10/12	
High Purity Fluid Skid	1283.35 h	461 d	12/07/10	09/11/12	
Move from NuMI to Lab 3	8 h	1 d	12/27/11	12/27/11	
Disassembly and inspection	80 h	20 d	01/19/12	02/15/12	
Cleaning	75.35 h	10 d	02/16/12	02/29/12	
Reassambly	200 h	50 d	03/01/12	05/09/12	
Mods for secondary containment	56 h	5 d	07/27/12	08/02/12	
Crate	40 h	5 d	08/01/12	08/07/12	
Ship to SNOLAB	40 h	5 d	08/08/12	08/14/12	
Ship underground	40 h	5 d	08/15/12	08/21/12	
Consumables	608 h	76 d	12/07/11	03/21/12	
Assemble underground	40 h	5 d	08/22/12	08/28/12	
Test underground	80 h	10 d	08/29/12	09/11/12	
Recertifications for TSSA	16 h	1 d	12/07/10	12/07/10	
Hydraulic Skid	712 h	131 d	12/27/11	06/26/12	
Remove from NuMI	8 h	1 d	12/27/11	12/27/11	
Modifications	420 h	86 d	12/28/11	04/25/12	
Control System	360 h	60 d	02/02/12	04/25/12	
Mechanics	60 h	5 d	12/28/11	01/03/12	
Testing	160 h	20 d	04/26/12	05/23/12	
Crate	32 h	10 d	05/24/12	06/06/12	
Ship to Snolab	16 h	2 d	06/07/12	06/08/12	
Transport underground	40 h	5 d	06/11/12	06/15/12	
Reassamble	20 h	5 d	06/18/12	06/22/12	
Leak check	16 h	2 d	06/25/12	06/26/12	
Bubble Chamber	1004.57 h	466 d	12/07/10	09/18/12	
Inner Vessel	452.57 h	159 d	02/02/12	09/11/12	
Remove from old OV	10 h	20.25 d	02/02/12	03/01/12	
Disconnect IV from OV	8 h	1 d	02/07/12	02/07/12	
Place IV on stand	2 h	2 h	03/01/12	03/01/12	
Inner vessel spring replace/ refurbish	16 h	2 d	03/01/12	03/05/12	
Acoustic sensor removal	192 h	25 d	03/07/12	04/10/12	
Procure solvent soaking equipment	176 h	20 d	03/07/12	04/03/12	



Name	Work	Duration	Start Date	Due Date	Committed Date
Remove old acoustic sensors	16 h	5 d	04/04/12	04/10/12	
Clean with HPR	102 h	100.75 d	03/01/12	07/19/12	
Prepare stand for IV	28 h	20 d	04/02/12	04/27/12	
Design stand	28 h	20 d	04/02/12	04/27/12	
Get IV to Lab 3	8 h	1 d	03/01/12	03/02/12	
Prepare cleaning tools	8 h	10 d	06/01/12	06/14/12	
Prepare clean room	8 h	10 d	06/01/12	06/14/12	
Use high purity water to rinse inner \	40 h	20 d	06/15/12	07/12/12	
Allow IV to dry and prepare for packi	10 h	5 d	07/13/12	07/19/12	
Pack and ship to SNOLAB	74.67 h	27 d	07/20/12	08/27/12	
Design a shipping container	8 h	20 d	05/01/12	05/28/12	
Fabricate shipping container	10.67 h	20 d	07/20/12	08/16/12	
Pack IV in shipping container	16 h	2 d	08/17/12	08/20/12	
Ship to SNOLAB	40 h	5 d	08/21/12	08/27/12	
Receive at SNOLAB	8 h	1 d	08/28/12	08/28/12	
Move underground at SNOLAB	16 h	5 d	08/29/12	09/04/12	
Unpack and prepare for nesting	33.9 h	5 d	09/05/12	09/11/12	
OV Top Flange	32 h	1 d	12/07/10	12/07/10	
Clean & Cap Flange, Bolts, Hardware	8 h	1 d	12/07/10	12/07/10	
Replace/ Refurbish Acoustic Sensor Fee	8 h	1 d	12/07/10	12/07/10	
Box	8 h	1 d	12/07/10	12/07/10	
Ship	8 h	1 d	12/07/10	12/07/10	
Outer Vessel	440 h	48 d	06/13/12	08/17/12	
Receipt at SNOLAB		1 d	06/13/12	06/13/12	
Move underground	40 h	5 d	06/14/12	06/20/12	
Move into water tank	40 h	5 d	06/26/12	07/02/12	
Installation and test	360 h	34 d	07/03/12	08/17/12	
Hook up to cabling and piping	120 h	5 d	07/03/12	07/09/12	
Connect to hydraulic cart	40 h	5 d	07/10/12	07/16/12	
Leak check	32 h	2 d	07/17/12	07/18/12	
Pressure test with instrumentation	8 h	2 d	07/19/12	07/20/12	
Test	160 h	20 d	07/23/12	08/17/12	
Nesting IV in OV	80 h	5 d	09/12/12	09/18/12	
High Purity Piping Installation	120 h	20 d	09/19/12	10/16/12	
Cabling IV instrumentation	80 h	10 d	09/19/12	10/02/12	
Installation travel	8 h	1 d	12/07/10	12/07/10	
Commissioning	80 h	40 d	10/03/12	11/27/12	
Area 3: Site	8612 h	475 d	12/07/10	10/01/12	
MOU	96 h	60 d	11/01/11	01/23/12	
Utilities	480 h	60 d	01/02/12	03/23/12	
Water Tank	2960 h	405 d	12/07/10	06/25/12	
Tank Body	1440 h	395 d	12/07/10	06/11/12	
Design	720 h	90 d	12/07/10	04/11/11	
Procure	480 h	60 d	04/12/11	07/04/11	
Assemble	240 h	30 d	05/01/12	06/11/12	
Liner Procurement	240 h	30 d	01/02/12	02/10/12	
Insulation	880 h	226 d	08/01/11	06/11/12	
Design	720 h	90 d	08/01/11	12/02/11	



Name	Work	Duration	Start Date	Due Date	Committed Date
Procure	160 h	20 d	05/15/12	06/11/12	
Lid	400 h	170 d	11/01/11	06/25/12	
Design	160 h	20 d	11/01/11	11/28/11	
Procure	160 h	20 d	05/08/12	06/04/12	
Assemble water tank lid	80 h	10 d	06/12/12	06/25/12	
Water Heating and Circulation	336 h	420 d	12/07/10	07/16/12	
Prefab	200 h	5 w	12/07/10	01/10/11	
Ship	16 h	2 w	06/01/12	06/14/12	
Snolab assembly	80 h	10 d	06/26/12	07/09/12	
Utility hookup	40 h	1 w	07/10/12	07/16/12	
Access platforms	40 h	5 d	06/26/12	07/02/12	
Safety Infrastructure	1852 h	452 d	01/07/11	10/01/12	
Safety Plan	168 h	70 d	08/01/11	11/04/11	
Safety Review	112 h	3 d	05/21/12	05/23/12	
Safety Design	140 h	60 d	11/07/11	01/27/12	
Vent System	392 h	175 d	01/30/12	09/28/12	
Design	40 h	5 d	01/30/12	02/03/12	
Write Specs	24 h	3 d	04/02/12	04/04/12	
Procure Blower	8 h	30 d	01/30/12	03/09/12	
Hire contractor	160 h	20 d	07/02/12	07/27/12	
Install	160 h	20 d	09/03/12	09/28/12	
CF3I Alarm System	800 h	176 d	01/30/12	10/01/12	
Procure Parts	240 h	30 d	01/30/12	03/09/12	
Assemble & Install in Rack	320 h	40 d	03/12/12	05/04/12	
Alarm Software	32 h	5 d	01/30/12	02/03/12	
CF3I Safety System Test @ FNAL	80 h	5 d	05/07/12	05/11/12	
Ship	40 h	5 d	05/14/12	05/18/12	
Underground Installation CF3I Safety Sy	80 h	10 d	05/14/12	05/25/12	
CF3I Safety System Test @ SNOLAB	8 h	1 d	10/01/12	10/01/12	
Personal protective equipment	240 h	30 d	11/07/11	12/16/11	
Site Infrastructure	2168 h	302 d	01/07/11	03/05/12	
Lifting equipment	8 h	1 d	01/07/11	01/07/11	
Furniture	720 h	90 d	11/01/11	03/05/12	
Tools	720 h	90 d	11/01/11	03/05/12	
Lighting	720 h	90 d	11/01/11	03/05/12	
Training	96 h	5 d	01/02/12	01/06/12	
Housing	8 h	1 d	12/07/10	12/07/10	
Piping Prefab	576 h	52 d	04/02/12	06/12/12	
Order pipe & fittings	96 h	12 d	04/16/12	05/01/12	
Mount OV lid on stand	80 h	5 d	05/02/12	05/08/12	
Hyrdaulic Cart Piping to Outer Lid	80 h	5 d	05/09/12	05/15/12	
Water Piping to Outer Lid	80 h	5 d	05/16/12	05/22/12	
Secondary Containment Box	80 h	5 d	05/23/12	05/29/12	
OV Lid to Outer Lid	80 h	5 d	05/30/12	06/05/12	
Ship prefab sections	80 h	5 d	06/06/12	06/12/12	
Area 4: Test Chambers	2112 h	384 d	12/07/10	05/25/12	
Equipment	8 h	1 d	12/07/10	12/07/10	
Labor	160 h	1 d	12/07/10	12/07/10	



Name	Work	Duration	Start Date	Due Date	Committed Date
COUPP-4	1832 h	384 d	12/07/10	05/25/12	
Acoustic Chamber	8 h	1 d	12/07/10	12/07/10	
Pion Chamber	96 h	306 d	12/07/10	02/07/12	
Neutron Chamber	8 h	1 d	12/07/10	12/07/10	
New Camera Decision		0	04/11/12	04/11/12	
New Outer Vessel Vendor Selection		0	12/06/11	12/06/11	
Pass NuMI Chemical Test		0	11/15/11	11/15/11	
CIRTE Chamber Ready		0	02/01/12	02/01/12	
Start COUPP-4 Run 2		0	05/25/12	05/25/12	
Pass SNOLAB Safety Review		0	05/23/12	05/23/12	
Water Tank Ready		0	06/25/12	06/25/12	
Outer Vessel Ready		0	06/12/12	06/12/12	
Inner Vessel Ready		0	09/11/12	09/11/12	
Pass Optics and Illumination Test		0	07/04/12	07/04/12	
Pass Video Acquisition Test		0	08/15/12	08/15/12	
2nd Generation Acoustic sensors ready		0	05/15/12	05/15/12	
System Test-- No IV		0	08/17/12	08/17/12	
Start Commissioning		0	10/02/12	10/02/12	
Ready for Physics Runs		0	11/27/12	11/27/12