



**LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY**  
**RECORD OF DECISION/AGREEMENT (RODA)**

Document	LIGO-M <input type="text" value="M080109-00"/> _Y	
Date:	<input type="text" value="25 June 2008"/>	
Title:	RODA: <input type="text" value="No Fibre Pulling Machine for Adv LIGO at LLO"/>	
To the Attention of:	aligo_sus, FMP team (John Worden, Allen Sibley, Betsy Bland, Corey Gray, Janeen Romie, Mike Zucker, Vagesh Parameshwaraiah)	
cc:	aligo_sys	
From/ signatories:	Name/Title: <input type="text" value="Norna Robertson (SUS leader)"/>	Signature: _____
	Name/Title: <input type="text" value="Janeen Romie (HAM-SUS leader)"/>	Signature: _____
	Name/Title: <input type="text" value="Carol Wilkinson (INS Leader)"/>	Signature: _____
	Name/Title: <input type="text" value="John Worden (FMP Leader)"/>	Signature: _____
System(s) affected:	<input type="checkbox"/> Initial LIGO <input checked="" type="checkbox"/> Advanced LIGO <input type="checkbox"/> Other: <input type="text"/>	
Nature/ Scope:	<input type="checkbox"/> Design Decision <input type="checkbox"/> Requirements Decision <input checked="" type="checkbox"/> Work Scope Decision <input type="checkbox"/> Working Agreement between Groups <input checked="" type="checkbox"/> Other <input type="text" value="saving on facilities"/>	
Subsystem(s) affected	<input type="checkbox"/> Relevant Subsystem(s)/Component(s): <input type="text" value="SUS, FMP, INS"/> <input type="text"/>	
Primary Contacts	Group or Affiliation and Contact <input type="text" value="Norna Robertson"/>	
Reference Documents:	<input type="text"/>	

**DECISION/AGREEMENT STATEMENT:**

The original plan for silica fibre pulling for construction of Adv LIGO suspensions was to have a fibre pulling machine at both LHO and LLO. With this RODA we are changing the plan to building one pulling machine only, which will be sited at LHO.

**Background**

We originally planned to duplicate all aspects of suspension assembly at the two observatories. However we note that the equipment and associated facilities needed to carrying out pulling of fibres are costly. It requires not only the pulling machine itself, which is a relatively complicated piece of apparatus utilizing a high power CO<sub>2</sub> laser, but also a strength testing machine, bounce

frequency tester and optical profiler. All of these machines require to be sited in a suitably-sized clean room. All of them require operators trained in their use. We note also that the number of fibres currently expected to be installed in Adv LIGO is 4 per test mass, of which there are 4 per detector, thus 48 fibres in total. Even with the production of several times this number to allow for testing and spares, we note that the duplication of pulling machines at each observatory is a costly undertaking for a small output. Finally we note that our SUS colleagues in the UK have already gained experience of successfully transferring pulled fibres from the UK to Italy. We have chosen LHO as the site for the single pulling machine from considerations of staff availability.

Note that the design and procurement of fibre storage and shipping containers is the responsibility of the SUS group.