

Engineering Change Request Form

Change Request No.: 1304-00217	Date: 5/24/2012	WBS:
Control Account Name: None	Configuration Manager: McGuire, Chuck	Control Account Manager: Denny, Gerald
SECTION TO BE COMPLETED BY PERSON REQUESTING CHANGE:		
Requestor: Dana Manalang	Telephone Number: (206) 685-9910	
Request Name (Include document number and revision level): Guralp Short Period Seismometer (OBSSP) Waiver		
Description of Change (Include all related systems): A Waiver is requested to use the Guralp Short Period Seismometer as RSN's OBSSP instrument. UW selected the instrument through a formal and competitive Request For Proposal (RFP) process. This instrument was chosen in accordance with the Source Selection Plan, utilizing a skilled Source Selection Evaluation Board, and meeting the competitive procurement obligations of OOI. However, it does not fully meet the following requirements: L4-RSN-IP-RQ-146: The SSM Instrument for Short Period Seismic Sensing shall make short-period measurements of ground velocity at instrumental noise levels that are below the curve defined by the points: -168.5 dB @ 1 Hz, -160 dB @ 10 Hz and -145 dB @ 100 Hz, where all dB// $(m/s^2)^2/Hz$ (PSD) at all frequencies. L2-SR-RQ-3312: The OOI shall make short-period measurements of ground velocity at instrumental noise levels that are below the curve defined by the points: -168.5 dB @ 1 Hz, -160 dB @ 10 Hz and -145 dB @ 100 Hz, where all dB// $(ms^{-2})^2/Hz$ (PSD) at all frequencies. The instrument, as proposed, meets or exceeds the 1 Hz and 10 Hz portions of the above requirements, but has a noise floor that is slightly above the 100 Hz specification. The attachment shows the requirement numbers and text, the instrument spec statements (current and those sent out with the RFP), and the vendor's RFP response to the specifications.		
Reason for Change: While the selected instrument does not meet the requirements noted above, it provides the best value to OOI at this time. This ECR is a Waiver Request submitted in accordance with the Procedure for Obtaining Waivers which resides in the Systems Engineering Process Library in Alfresco. A waiver is a specific written authorization to accept a product which departs from specified requirements, but nevertheless is considered suitable for use "as is" or after modification by an approved method. A waiver states that a requirement does not need to be satisfied in order to pass a test of the related product. Waivers are associated with particular products and do not modify the requirement(s) in question. The procurement Source Selection and Evaluation Boards (SSEB) are authorized to procure products which deviate from the approved requirements in order to achieve the best value for the program. This scope of this ECR is whether the item is acceptable and the Waiver should be granted; it does not include the SSEB process.		
Benefit to OOI: This waiver allows the procurement and fielding of a best value instrument that has been procured through a competitive process. <i>Requestor Assessment of Impact to Control Account:</i>		
Scope: no change		
Schedule: no change		
Cost: no change		
SECTION TO BE COMPLETED BY IO/SL CCB CHAIRPERSON:		
<i>Assessment of Impact to IO Project:</i>		
Master Schedule: None		
Project Cost: None		

Deliverables:

None

Potential Impact to Science and Design / As-built Capability: This instrument is not the exemplar listed in the FND. This waiver will not impact the ability of the OOI to answer the Science Questions and meet the needs of our user community. The requirements were established to push the cutting edge of short period seismometer technology and even the exemplar instrument would not meet them.

Percent Impact on WBS elements(s) selected: 0%**Percent Impact on OOI:** 0%**Contingency \$0****Contingency Schedule (weeks):** 0**Signature of RSN CCB Chairperson:**

Chuck McGuire (mcguire@apl.washington.edu)

Date:

5/25/2012 1:30:00 PM

Board Determination:

Approved

Signature of System CCB Chairperson:

Ed Chapman (echapman@oceanleadership.org)

Date:

6/5/2012 2:00:00 PM

Board Determination:

Approved with Liens

Signature of NSF CCB Chairperson:

Jean McGovern (jmcgover@nsf.gov)

Date:

7/3/2012 4:00:00 PM

Board Determination:

Approved

CERTIFICATION OF TECHNICAL DATA PACKAGE AND CONTROL SYSTEM UPDATE**Signature of Configuration Manager:**

Chuck McGuire (mcguire@apl.washington.edu)

Date:

7/6/2012 5:22:00 PM

Systems and**Documentation Updated:**

Confirmed Complete

Attach supporting technical documentation and or additional comments as needed.

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ECR Comments

#	Reviewer	Date Added	General Comment	Requestor Response	CCB Decision	Lien
1	Chuck McGuire	5/24/2012	Looks Good Recommend Approval!			
2	Gerald Denny	5/25/2012	recommend approval			
3	Ed Chapman	6/1/2012	I recommend approval.			
4	Sheri White	6/1/2012	No comments. Recommend approval.			
5	Pete Barletto	6/3/2012	Recommend Approval			
6	Susan Banahan	6/3/2012	Recommend approval.			
7	John Orcutt	6/3/2012	The USGS NLNM noise model, derived from extrema in many continental measurements, lies outside the reach of any existing geophone (passive instrument). I assume that the OBSSP instrument is a geophone - much better performance could be obtained with an active instrument such as those used in existing OBSs, but is unnecessary if the intention is to monitor local micro seismicity. The high frequency noise environment is still poorly quantified and such studies rely upon instrumentation beyond that being proposed for the OBSSP - in the case of the NSF Ocean Bottom Seismograph Instrument Pool (OBSIP), the proposed geophone solution is largely used for active source studies where the waterborne signal is quite large. Recommend approval assuming that the scientific requirements are based on the constraints noted above.	Accept		
8	Frank Vernon	6/5/2012	A science driver for the short period sensors is to make high fidelity recording of earthquakes near the sensors. The study of the physics of earthquake sources needs good recordings of local earthquakes at high frequencies (> 30 Hz). Looking at the chosen sensor information provided, The plot shows the sensor noise is -150db at 50 Hz, which will affect the usefulness of these sensors for certain types of source physics studies. Outside of the claims of the selected manufacturer, was any consideration made for reviewing the capabilities of other sensors on the market which may have better noise characteristics? If so, can this be considered?	Reject		
9	Frank Vernon	6/5/2012	There is no plot corresponding to the statement: Using the nominal 1500 V-s/m output sensitivity for the seismometer and the bit weight of the digitiser at unity gain of 2.8 micro volts per count the following resolution plot shows the Input Terminated Noise floor of the digitiser referred to the round motion taking into account the response of the Seismometer. This would be the lowest noise levels measurable if a gain of 1 and 1500 V-s/m was used. There is no plot following.	Accept		

10	Frank Vernon	6/5/2012	The statement "referred to the round motion" should read "referred to ground motion"		Accept	Yes
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ECR Vote (Highest Level Board: NSF)

Title	Member Name	Delegate Name	Vote	Comment
Associate Program Director	Susan Banahan		(Did Not Vote)	
Chief Systems Engineer	Ed Chapman		(Did Not Vote)	
OOI Program Director/PI	Tim Cowles		(Did Not Vote)	
Senior Project Manager, Advisor	Anthony Ferlaino		(Did Not Vote)	
NSF Program Director	Jean McGovern		Approve	

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ECR Liens/Action Items			
Lien	Due Date	Complete	Completion Date
Edit text to show "ground motion" intended. (E. Chapman)	6/12/2012	Yes	6/6/2012

Action Item	Due Date	Complete	Cancel	Completion Date
Mark the Verification Status for the L2 requirements as "Waived" in DOORS.	7/23/2012	Yes	No	7/6/2012
Mark the Verification Status for the L3 requirements as "Waived" in DOORS.	7/23/2012	No	Yes	
Mark the Verification Status for the L4 requirements as "Waived" in DOORS.	7/23/2012	Yes	No	7/6/2012
Update "Approved Waiver-CM" attribute for affected L2 requirement (s) in DOORS with the ECR number of the approved Waiver and a description of the affected product.	7/23/2012	Yes	No	7/6/2012
Update "Approved Waiver-CM" attribute for affected L3 requirement (s) in DOORS with the ECR number of the approved Waiver and a description of the affected product.	7/23/2012	No	Yes	
Update "Approved Waiver-CM" attribute for affected L4 requirement (s) in DOORS with the ECR number of the approved Waiver and a description of the affected product.	7/23/2012	Yes	No	7/6/2012
Baseline L2 Science Requirements module	7/20/2012	Yes	No	7/6/2012
Baseline L4 RSN Instrument Package module	7/20/2012	Yes	No	7/6/2012
Export updated L2 Science Requirements spreadsheet and post in Alfresco	7/20/2012	Yes	No	7/6/2012
Export updated L4 RSN Instrument Package spreadsheet and post in Alfresco	7/20/2012	Yes	No	7/6/2012

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ECR Meeting Results and Notes

Board Level	Meeting Date	Meeting Name	Meeting Result	Meeting Notes
RSN	5/25/2012	RSN CCB	Approved	
System	6/5/2012	2012-06-05 System Level CCB	Approved with Liens	
NSF	7/3/2012	2012-07-03 NSF CCB	Approved	