From: http://www.unols.org/committees/dessc/CRITERIADOCUMENT_062206.PDF

1) Is there a significant and established broad demand by the community for the asset and will this demand continue in the future? Evidence for meeting this requirement should include a sustained record of funding and successful deployments, documentation that includes publications based on this success, and letters of endorsement from the user community.

2) Would incorporating the asset into the NDSF make it significantly more beneficial to the community than it is now? How would the community benefit by having it in the facility?

3) Does the asset provide a unique capability to the deep submergence community that is not currently available from other facility assets and/or is the demand so high that a single asset cannot fulfill the demand? A full description of the asset should include its unique capabilities, the type of environment it is suited to work in, and the types of science (present and future) that it is suited to address. Operators should also include a statement regarding what type of vessels and capabilities are required to operate the asset (e.g. is dynamic positioning a requirement?)

From: http://www.unols.org/committees/dessc/CRITERIADOCUMENT_062206.PDF

4) Is the asset proven to be robust and beyond a developmental stage? Documentation of successful missions/deployments should be included with records of reliability, durations of deployments, and life expectancy.

5) What is the plan for transitioning this asset into the NDSF and how will it be incorporated operationally into the facility? This plan should include a detailed time line.

From: http://www.unols.org/committees/dessc/CRITERIADOCUMENT_062206.PDF

6) What are the financial costs associated with the asset? Include complete documentation of the operational, maintenance, and personnel costs (current and estimated in the future), complete inventory of high-price components, documentation of off the shelf versus one-of-a-kind required components, and number of required shore-based and ship-based personnel. Consideration should be given to the logistical support required for expeditions and shore-based work.

7) What is the mechanism for providing high-quality data products from the asset in a timely fashion that are easily accessible to the users? Are the data products in a standard format useable by the general community? Are the data products similar to those from other NDSF assets? Products such as navigation track lines and bathymetric maps should be produced by the end of the expedition. Other products may require longer time periods for processing. Information regarding expected timeline for completion of products should be included in the request.

Criterion 4 = Robustness

June 2009, Ian MacDonald

- *Sentry* not operational at outset of cruise: weight dropping, camera
- Photography established for first time on *Sentry*
- 66% of planned science achieved in final 50% of cruise

Sept 2009, Dave Valentine

- No obvious problems
- Mapping, photography & *in situ* sensing (incl user-provided Tethys)
- Multi-beam processing still very labor intensive for AUV team
- Interactions between *Sentry* and *Alvin* = force multiplier
- ≥100% of planned science achieved

Criterion 4 = Robustness

<u>March-April 2010, John Sinton</u>

• Mapping ± *in situ* sensing
• Multi-beam processing within hours (2-4h) using automated scripts
• Science party readily able to import into a variety of tools (e.g. MB software, Fledermaus) & process further
• Interactions between *Sentry* and *Alvin* = force multiplier (again)
• Team recovered from serious leak in main pressure housing in ≤ 72h
• ≥100% of planned science achieved

• Only other reliability issue: adherence to pre-dive check-list!!!

From: http://www.unols.org/committees/dessc/CRITERIADOCUMENT_062206.PDF

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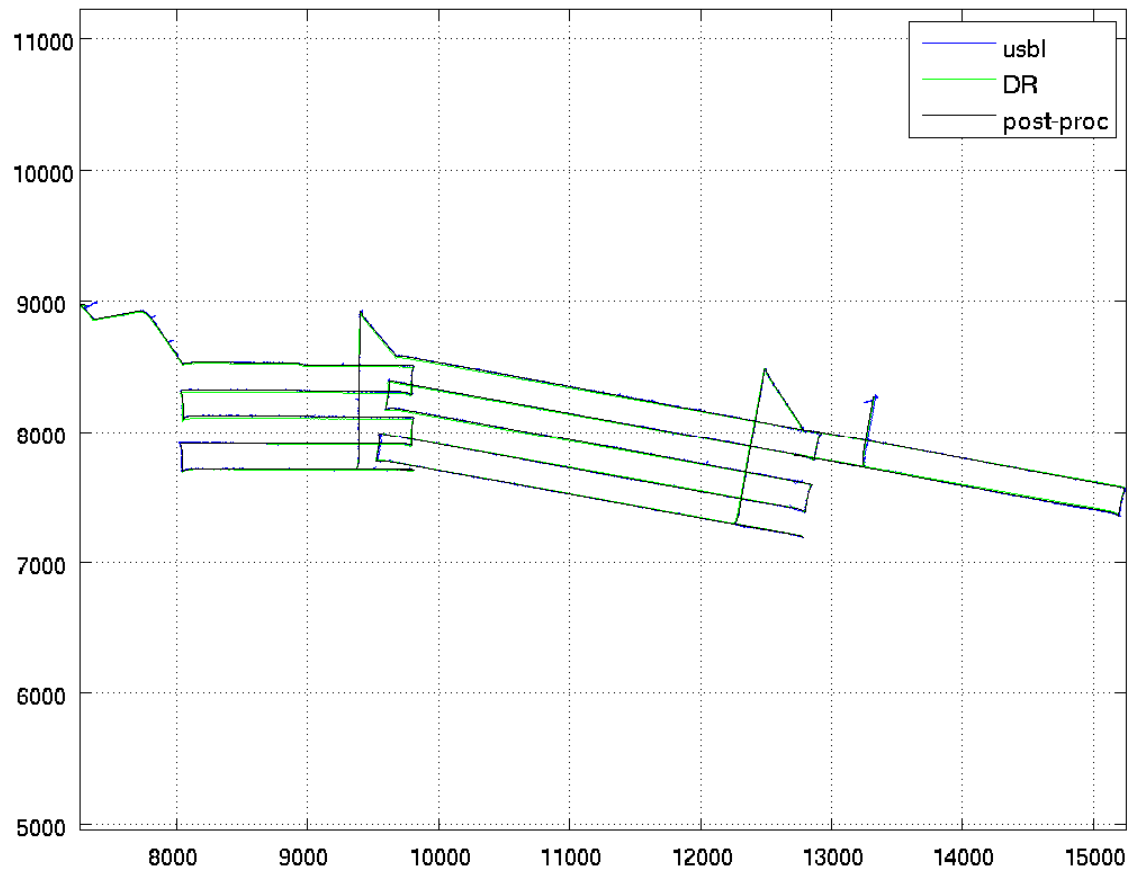
Criterion 7 = High Quality Data Products

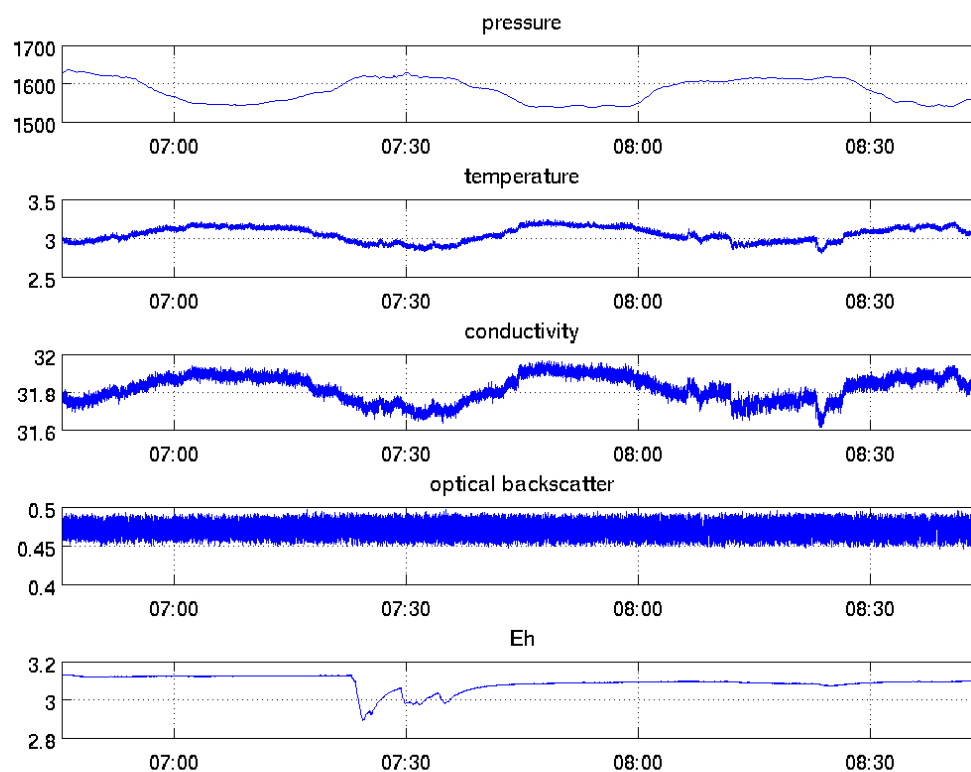LBL and USBL Navigation

Criterion 7 = High Quality Data Products

In situ sensors – as for ABE: CTD, optical, dual 3-component magnetometers; Eh by collaboration

Anticipated Actions

- NDSF seeks a *recommendation* from DESSC to UNOLS that *Sentry* be formally adopted into the National Deep Submergence Facility

- NDSF updates the user-guide web-pages at www.whoi.edu to reflect the capabilities of *Sentry* as the NDSF AUV

- UNOLS updates the ship time request form to reflect that NDSF continues to have an AUV that can be provided

- PI's are able to request *Sentry* through NDSF (Aug 15th)