

SODCO Third-Party Tools and Instruments Policy

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General Principles

In addition to the standard instrumentation and tools available for all scientific expeditions operated by the U.S. National Science Foundation Scientific Ocean Drilling Coordination Office (SODCO) for the U.S. scientific ocean drilling program, ocean drilling expeditions have historically drawn upon tools or instruments that were purchased or developed outside the framework of the primary operator. **Any tools or instruments that are outside of the services contracted by SODCO and supplied by an investigator (PI) are known as “third-party tools and instruments.”**

Broadly speaking, scientific ocean drilling tools and instruments comprise three types: (1) downhole (coring and transient borehole measurements), (2) observatory (left behind in the drill hole), and (3) laboratory-based (either shipboard or onshore in the Gulf Coast Repository [GCR]). Each category has unique characteristics, but all of them require technical support from SODCO, which may require recommendation or approval of associated operating costs by the National Science Foundation (NSF).

Support for the purchase or deployment of third-party tools and instruments can come from various sources. Investigators and those funders should ensure that proposals for funding of third-party tools and instruments include plans, resources, and funds for satisfying the criteria set out in this document. The final responsibility and approval for the use of a third-party tool or instrument during SODCO expeditions or in the GCR laboratories rests with SODCO.

Third-party tools and instruments must satisfy the operational and safety criteria that SODCO applies to its own in-house tools and instruments. Careful pre-expedition planning is essential if third-party tools and instruments are to be successfully integrated into the scope of the planned shipboard or onshore expedition work. The investigator for a third-party tool or instrument, in consultation with SODCO, is responsible for providing funds for the planning activities, shipping the tool or instrument to and from the site of deployment (e.g., the port of departure), and integrating tool or instrument deployment into the expedition work and data flow. Work that SODCO is expected to contribute must be identified as early as possible to minimize the impact of potential resource requirements.

Funding of a third-party tool or instrument does not guarantee time or space on SODCO expeditions for use of that tool or instrument. If the investigator for a third-party tool or instrument is different from the principal investigator of an expedition project, the latter must approve the use of the third-party tool or instrument. The primary responsibility for integrating a tool or instrument into SODCO operations rests entirely with the investigator, not with SODCO. Should SODCO accept a tool or instrument for deployment, operation and support responsibilities should be unambiguous.

Third-party tools and instruments are considered shipboard instruments when deployed aboard a SODCO expedition. Similarly, any third-party instrument used to collect data at the GCR during the onshore phase of an expedition is part of the expedition's measurement suite. Consequently, data and/or samples acquired through the use of third-party tools and instruments are subject to the same dissemination rules as any other data or samples collected during SODCO expeditions and the onshore measurement phase (see the Scientific Ocean Drilling Programs Sample, Data, and Obligation Policy). For example, data produced through the use of third-party tools or instruments are considered expedition data and will be made publicly available after the expedition moratorium period ends. Any third-party tool or instrument deployment plan must specify the current and potential future data and sample deliverables for the tool or instrument. PIs are required to document the tool or instrument's use and relevant digital data files for the expedition report.

Guidelines for Third-Party Tool and Instrument Development

Primary Guidelines and Criteria

Communication is key to the successful deployment of third-party tools and instruments. The investigator wishing to deploy a third-party tool or instrument should consult with SODCO early in expedition planning and should provide specifications and operational criteria. For example, a laboratory instrument to be operated by the investigator may simply require power, space, safety information, and a sampling and measurement plan. Off-the-shelf borehole tools will additionally require plans for integration with existing systems (e.g., drill pipe, cable heads, data retrieval, instrument storage). For all categories of third-party tools and instruments, pre-expedition planning must define explicitly how much time and resources (funds and personnel) are needed and how much support SODCO can commit during deployment.

For a third-party tool or instrument to be considered for active deployment on a SODCO expedition or onshore at the GCR, the following criteria must be met:

1. There must be a designated investigator who is the primary point of contact for the use of the tool or instrument aboard the drilling vessel or platform during an expedition or at the GCR during the onshore measurement phase.
2. The investigator must formulate a third-party tool or instrument deployment plan in consultation with SODCO. This plan should, where appropriate:
 - a. Indicate the usefulness of the proposed measurements and the financial and technical feasibility of making them;
 - b. Include a detailed description of the tool or instrument, all the schematic diagrams, a complete standard operational procedure, and a listing of all the technical specifications, including the dimensions, weight, temperature and pressure ratings, cable-length restrictions, cable type (etc.), and a detailed list of supplies and consumables (whether

- off the shelf or custom made);
 - c. Satisfy safety considerations (see Special Safety Considerations);
 - d. Specify shipboard or shore requirements, such as data processing necessary to make the information accessible during the expedition phase, any special facilities if so required (emphasizing where and why the tool is not compatible with existing hardware and software), and appropriate technical support;
 - e. Specify the data deliverables;
 - f. Provide estimates of both cost and time necessary for transporting tools and instruments for shipboard deployment;
 - g. Include a signed pro forma statement of agreement with all the above listed third-party tool and instrument requirements.
3. SODCO will inform NSF in the case of the deployment of a new third-party tool or instrument and if the deployment plans impact operational time during a scheduled expedition.
 4. If SODCO endorses the deployment plans, a SODCO staff liaison will be appointed to monitor the third-party tool's or instrument's progress through the deployment planning.
 5. With agreement of SODCO, NSF, and the principal investigator of the expedition, a third-party tool or instrument may be scheduled for testing during an upcoming expedition. During the testing phase, the scientific success of an expedition must not be contingent upon the proper functioning of such a third-party tool or instrument.
 6. It is incumbent upon the investigator to ensure that SODCO is fully advised of the status of the tool or instrument, at any time. If deployment planning falls seriously behind schedule and/or the investigator is unlikely to satisfy all of the above criteria prior to a planned deployment, SODCO has the right to withdraw the third-party tool or instrument from further consideration for an expedition.

Instrument Development

For the development of third-party tools or instruments, the investigator should contact SODCO.

Special Safety Considerations

The safety of the drillship or platform, laboratory, and all staff and scientists are paramount, so the hazards of any third-party tool or instrument must be identified by the investigator before the third-party tool or instrument can be approved by SODCO. Each type of hazard requires its own set of considerations and questions that should be answered by the investigator.

Lasers

For any third-party tool or instrument equipped with a laser, the investigator must provide the class of the laser and safety measures and protocols for its safe use. Texas A&M University's Environmental Health and Safety Department (TAMU-EHSD) must license any Class IIb or higher laser prior to the expedition.

Radioactive Source/Radiation-Producing Devices

For equipment with a radioactive source, the investigator must provide a list of all isotopes, their form, and the activity of each of the isotope(s) in mCi or μ Ci units. If the equipment has a radiation-producing device (RPD), the investigator must provide the voltage and amperage of the RPD. The investigator will also provide the relevant safety precautions for the third-party tool or instrument. Any radioactive source or RPD must be licensed by TAMU-EHSD prior to the expedition.

High Pressure Devices

High-pressure devices are defined for each category of gas: (1) compressed gas with service or operating pressures above 10 atmospheres (103 kPa, or 147 psi); (2) liquefied gas held at pressures above 2 atmospheres (200 kPa, or 29 psi) at 35°C; and (3) special gas at any measurable pressure at 35°C. The latter category is reserved for gases or liquefied gases that present special hazards (such as methyl bromide [CH_3Br], acetyl group or ethanone [$\text{C}_2\text{H}_2\text{O}$]).

For high-pressure devices, the investigator must identify the gas or liquefied gas, specify the expected operating conditions and pressures, and list all safety features that are included for hazard protection.

Chemical Hazards

Any chemical to be used by the third-party tool must be identified to SODCO during the submission and approval process. This includes chemicals with U.S. National Fire Protection Association (NFPA) safety ratings of zero (0), those marked "general storage," and those commercially available (e.g., cleaning solutions). Each chemical substance will be evaluated by SODCO staff for its specific hazards and a determination will be made if it is compatible with shipboard or GCR safety measures and protocols, or if a conflict exists with normal operations.