

Core Research Centre Material Sampling Procedures

Effective November 2023

Purpose

The purpose of the material sampling operating procedure is to preserve and maintain the integrity of the core and drill cuttings stored at the Alberta Energy Regulator Core Research Centre (CRC) while allowing other geological and engineering research that supports the safe and efficient development of Alberta's energy resources.

This procedure will guide you through the standard process for obtaining approval to sample material from the CRC. It will describe

- what is expected before material sampling can be approved,
- how to get approval to sample material,
- how to submit test results and return residual material, and
- how test results will be disseminated.

Any routine core analysis that is completed by a licensee before the core has been submitted to the AER is not covered by this procedure.

All forms and documents noted in this procedure are available on the AER's website at www.aer.ca.

Terms

“Core” refers to all core that has been selected for storage or core required to be submitted as per the *Oil and Gas Conservation Rules (OGCR)*, regardless of its current location.

“CRC Compliance” refers to those AER staff members responsible for the material sampling approval process, including compliance activities related to the submission of test results, artifacts, and returned material.

“CRC privileges” refers to all services listed in the AER *Products and Services Catalogue* that are provided by the CRC, as well as access to the CRC and its collections.

“Material” means all core and drill cuttings stored at CRC regardless of the type of resource (i.e., oil sands, conventional, coal, shale, etc.).

“Material sampling technical team” refers to the team that has been established to provide technical assistance related to material sampling. The material sampling technical team will advise CRC

Compliance on all matters requiring technical expertise related to material sampling activities. The team currently sits under Regulatory Submissions and Compliance, CRC Compliance.

“Residual material” is the physical material that is remaining after the test has been performed on the original sample.

“Sampling category” refers to the type of analysis being performed, which can be either one of the following:

- Reservoir evaluation/productivity studies (REPS): Testing pertaining to the estimation or recovery of oil and gas reserves that does not involve routine measurements of porosity, permeability, or fluid saturation. It’s also referred to as reservoir evaluation, productivity studies, or special core analysis.
- Geological/other studies (GOS): All other testing of material for geological or other purposes.

“Test results” means all analytical data (both qualitative and quantitative) derived from the sampling. Test results may also include context and methodology of the study as well as artifacts created such as thin section slides.

Before Obtaining Approval

Check the [REPS and GOS Index](#) to see if prior sampling has been conducted. CRC Compliance will not approve material sampling requests if the analysis already exists.

Check the list of test types approved for material sampling to confirm whether the proposed test is an approved type. This list contains the following information:

- test types approved for material sampling (e.g., TOC, Rock Eval, etc.),
- a description of the test,
- the sampling type of each test (REPS or GOS),
- sample allowance per test,
- whether residual material is to be returned to the CRC, and
- the required condition of the residual material (which determines whether or not the residual material is to be returned to the CRC).

If the proposed test is not on the list of test types, please review with CRC Compliance staff.

If a client believes that existing test results are questionable or that there would be value in retesting, a request to retest, with justification can be sent to CRCComplianceAdmin@acr.ca.

If the well is listed as confidential, authorization is required from the licensee before being given access to the material. Complete the [Information Release and Liability Waiver for Sampling and Viewing of Confidential Material form](#) and submit it to CRC Compliance at CRCCComplianceAdmin@aer.ca.

For nonconfidential wells, all sampling outside of the GOS category requires licensee authorization for the first five years after the finished drill date. GOS sampling of nonconfidential wells never requires licensee authorization.

In some cases, a company can request a delay in submitting the core to the CRC (e.g., the core needs to be kept in a specific state for certain tests to be run). Requests must be sent to CRCCComplianceAdmin@aer.ca. Delays may not exceed three years.

Obtaining Approval to Sample

To obtain approval to sample material, complete the sampling request web form. If you are on the premises, do not submit the form until you have reviewed it with a staff member. If you are *not* on the premises, the submitted form will be reviewed by a staff member who may contact you with further questions before deciding whether to approve the request.

We will not approve requests for sampling if the integrity of the remaining material is put at risk. Risk conditions include the following:

Drill cuttings

- Less than one-third of the vial is available for viewing.

Core

- Only one-quarter of the core's diameter is available for viewing.
- The core's unique geological features (e.g., formation contacts, fossils) would be destroyed or diminished by sampling.
- The condition of the core is not conducive for cutting (e.g., shale, clay).

Sampling

We allow one sampling for a given test type as follows:

- **Drill cuttings:** One test type per vial of drill cutting material when material is removed for the test.
- **Core:** An appropriate amount of spacing (identified by CRC Compliance) is required between each sample, depending on the type of test. For example, reservoir evaluation and productivity studies completed on core drill plugs may be cut every 30 linear centimetres of core. To remove plugs closer

than 30 centimetres apart requires further justification and approval from the material sampling technical team.

We will allow a set amount per test (a sample allowance) to be removed from the core or the drill cutting vial.

In the event of approved extensive destructive analysis in which the viewing portion of the core is destroyed (physically, chemically, or thermally), an unaltered slab portion must be maintained and submitted in place of the destroyed viewing portion.

If a significant amount of material is required for analysis and only limited material will remain, sampling requests will be assessed on a case-by-case basis.

Sampling of nonconfidential wells will be allowed for the licensee or other third parties, as is standard AER practice for accessing data.

Material sampling will be in one of the following forms:

- **Drill cuttings:** A representative sample (high grading is not allowed).
- **Core:** Rubble to the required amount.
- **Core cut by CRC staff:** We will arrange for core cutting service. All core cuttings must be completed at the CRC unless the CRC does not provide the specific cutting service. See the AER Products and Services Catalogue for core cutting service charges.
- **Core removed by rock hammer:** Eye protection must be worn when using a rock hammer to remove core samples. You must supply your own eye protection on site. Samples may only be taken from thin pieces. Lengths of core will not be broken to obtain samples without prior approval. We will arrange for in-house cutting service if core cannot be sampled using a rock hammer.
- **Thin sections:** Thin section slides may be created from samples taken from core, sidewall core, and drill cuttings and must be submitted to the CRC. A duplicate thin section slide can be created if enough material is available, provided that one of the slides is submitted to the CRC. If a thin section slide is available for viewing, no additional thin section slides can be created from that specific material and depth. Thin section slides can be signed out by contacting CRCComplianceAdmin@aer.ca.
- A limited portion of any given core sample can be slabbed at the CRC for viewing with consultation of the CRC compliance team.

We will arrange a core loan to move the core off site for sampling when sampling cannot be completed on site, with some conditions:

- Licensee authorization is required for a core loan in which less than five years have passed from the finished drill date of the wellbore.
- The customer is responsible for maintaining the integrity of the core while it is off site and for adhering to all terms and conditions that were agreed upon with CRC Compliance before moving the material.
- Any sampling of core completed off site must be done in a manner that minimizes the disturbance to the surrounding core.
- Customers are responsible for any shipping or other expenses incurred for the movement of the material.

If the core is returned to the CRC in an unsatisfactory condition, core loan privileges may be suspended until the customer can demonstrate to the satisfaction of the AER that any future core moved off site for sampling will be returned in a satisfactory condition.

Submitting Test Results (Including Artifacts and Residual Material)

Analysis, artifacts, and samples should be submitted upon completion or by agreed upon due date.

- **Reservoir evaluation/productivity studies:** Submit test results within six months of the analysis date (see section 11.040 of the *OGCR*).
- **Geological/other studies:** Submit test results within one month of the test being completed.
- **Thin section slides:** Interpreted reports generated from viewing thin sections do not need to be submitted.

Extensions can be negotiated with CRC Compliance to a maximum of six months at the time of sampling approval. In exceptional circumstances, an extension may be granted after sampling is approved, but it must be requested before the submission due date.

Untested samples must be clearly marked with the UWI and depth and returned to the CRC with a written letter of explanation for why the untested samples were not required.

Sidewall core must be submitted to the CRC.

As per section 11.040 of the *Oil and Gas Conservation Rules*, one core per quarter section must be submitted for oil sands core. Additional core may be selected for storage to obtain the best coverage in the

quarter section. If oil sands core is not selected for storage at the CRC, the data on that core does not need to be submitted.

All test results, artifacts, and residual material must be submitted to the following physical address:

AER Core Research Centre
Attention: CRC Compliance
3545 Research Way NW
Calgary, Alberta T2L 1Y7

Submit test results for each UWI separately, except when

- using fluid (e.g., water, oil) from one well to test the material from another well or
- conducting special studies that investigate a group of wells.

Identify the full UWI and depths sampled in the submitted results.

Submit test results (except for physical artifacts) to CRC Compliance in an electronic format that is readable and searchable, including processed data (both qualitative and quantitative). Data-file format must allow for easy data analysis or manipulation.

The test results must contain all the following:

- analytical methodologies used
- analyses
- supporting or referenced analyses
- figures
- tables
- tested depths
- UWIs
- analyzed dates and findings
- laboratories that conducted the analyses
- images if obtained

Physical artifacts must have the complete UWI, including location exception (LE) and event sequence (ES) codes (e.g., 00/13-20-046-12W4/00); depth with measurement unit (ft/m); orientation of core on

slide; and type of stain used. Markings must be permanent and legible. Thin-section slides must be submitted in a protective cardboard box or sleeve.

Submit all test results to CRCCComplianceAdmin@aer.ca. UWI, depths, and test types must be identified. Physical media (like a USB drive) may also be mailed to the physical address listed earlier in this section. The correspondence must contain the following information:

- company name
- contact name
- contact phone number
- contact email address

If any test results were requested by AER teams other than the CRC, identify the team and the results requested.

Use the following file naming conventions for all test results. Each file name should be unique:

- Separate blocks of information with an underscore (e.g., GS_0123456_00-13-20-045-12W4-02).
- Identify the sampling category of the data by either using “RS” for reservoir evaluation/productivity studies or “GS” for geological/other studies. Where both reservoir evaluation/productivity studies and geological/other studies exist in a single report/file, “RS” should be used to apply the confidential status attributed to that data type.
- When multiple UWIs are being studied and data cannot be separated by UWI, then identify one UWI that was sampled in the file name.

Table 1. Example file name

Data type	Licence no.	UWI (maximum 20 alphanumeric characters, including hyphens)*	File extension
GS	0123456	00-13-20-045-12W4-02	.xls or .xlsx
Resulting file name:		GS_0123456_00-13-20-045-12W4-02.xls	

* Location exception code-legal subdivision-section-township-range-west meridian-event sequence

Returning Residual and Untested Materials

Return residual core material to the CRC as required (see the list of test types for material sampling). All core and drill cutting samples must be returned in an unaltered state if the test was not completed.

- Label returned core samples with the complete UWI and depth.

- Do not combine drill cuttings taken for composite testing unless you are certain the test can be completed.
- Return the drill cutting sample in the vials provided by the CRC and label them with the complete UWI and depth.

Dissemination of Test Results

- As per section 12.150(5) of the *OGCR*, test results for reservoir evaluation and productivity studies will be held confidential for one year from the date of the test or for the duration of the well confidential status, whichever is longer.
- Confidentiality of the test results for geological or other studies will be the same as the confidentiality status of the well.
- A searchable index of all submitted nonconfidential test results is available through the AER Products and Services Catalogue.
- Artifacts such as thin section slides are available for viewing at the CRC.

Contact Us

CRC Compliance: CRCComplianceAdmin@aer.ca

CRC Service Desk: 403-297-6400 (CRC.ServiceDesk@aer.ca)

Material Sampling Service Hours:

Tuesday to Friday 8:00 a.m. – 11:30 a.m.
1:00 p.m. – 3:30 p.m.