Cost-effective processing and refining of lithium into lithium hydroxide from strategic European multi-mineral lithium hard-rock projects (LITHOS)

Grant Agreement No 101138112

D1.2 Ethics plan

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The text has been developed based on the VTT ethics plan general template and LITHOS project proposal developed by all consortium partners.

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1 INTRODUCTION

This ethics plan describes the ethical principles and procedures to be followed during the management of the LITHOS project (Grant Agreement No. 101138112) that started on the 1st of January 2024 and will have a 42-month duration, finalizing on the 30th of June 2027. This deliverable "D1.2 Ethics plan" is related to the LITHOS Project Work package 1: Project coordination and management. The text has been developed based on the VTT ethics plan general template. The plan details the forthcoming actions and responsibilities for the consortium members to ensure that ethics requirements are carefully fulfilled.

The LITHOS project is carried out according to the highest ethical standards and the applicable EU, international and national law on ethical and research integrity principles. Moreover, the beneficiaries are devoted to ensuring the respect of fundamental EU values, such as respect for human dignity, freedom, democracy, equality, and the rule of law and human rights, including the rights of minorities.

The beneficiaries ensure that all ethics issues related to activities in the grant are addressed in compliance with ethical principles, the applicable international and national law, and the provisions set out in the Grant Agreement. In addition to the general ethics principles and relevant legislation, the consortium commits to following the practices in this document. This includes, for example, that all consortium members are responsible for immediately informing the coordinator if they notice an unexpected or new ethical issue.

The document is a core part of Task 1.2 Administrative, financial, legal, ethics and risk management. The task is led by VTT who is also responsible for this deliverable. VTT acts as "Ethics mentor", as it has a dedicated Ethics Committee, which submits ethical reviews on projects upon request. The Ethics Plan (D1.2) is prepared to cover forthcoming actions and responsibilities. While VTT coordinates Task 1.2, all consortium members are responsible for behaving and working according to the highest ethical principles and in good faith.

The LITHOS proposal was classified as "ethics ready" in the evaluation. In the project preparation phase, the consortium identified specific relevant ethical dimensions including:

- Humans
- Personal data
- Non-EU countries
- Environment, health and safety
- Artificial intelligence

These identified dimensions are addressed separately in the following chapters of this deliverable.

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2 ETHICS, RESEARCH INTEGRITY AND EC ETHICS PRINCIPLES

2.1 ETHICS (BASIC SHORT DEFINITION BY EU)

The EC defines ethics in the following way:

"The EC perceives 'ethics' as including questions of legal and regulatory compliance as well as a branch of philosophy. It is part of a process of 'governance'. The consideration of ethical issues, starting at the conceptual stage of a proposal, enhances the quality of research, increases its likely social impact, promotes research integrity, promotes a better alignment of research with social needs and expectations and, finally, supports the societal uptake of the fruits of research because high ethical standards generally merit public trust. In this spirit, the Commission aims to build a relationship between the research process and ethics that is collaborative and constructive (rather than negative and inhibitive)."[1]

In the Grant Agreement, Article 14, the EC brings out the following aspects related to ethics and values:

ARTICLE 14 — ETHICS AND VALUES

14.1 Ethics

The action must be carried out in line with the highest ethical standards and the applicable EU, international and national law on ethical principles.

Specific ethics rules (if any) are set out in Annex 5.

14.2 Values

The beneficiaries must commit to and ensure the respect of basic EU values (such as respect for human dignity, freedom, democracy, equality, the rule of law and human rights, including the rights of minorities).

and in Annex 5 Article 14 Ethics GA defines in detail that:

The beneficiaries must carry out the action in compliance with:

- ethical principles (including the highest standards of research integrity)[2] and

- applicable EU, international and national law, including the EU Charter of Fundamental Rights and the European Convention for the Protection of Human Rights and Fundamental Freedoms and its Supplementary Protocols.

[1] Roles and Functions of Ethics Advisors/Ethics Advisory Boards in EC-funded Projects. https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/ethics-guide-advisors_en.pdf
[2] European Code of Conduct for Research Integrity of ALLEA (All European Academies).

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- No funding can be granted, within or outside the EU, for activities that are prohibited in all Member States. No funding can be granted in a Member State for an activity which is forbidden in that Member State.

- The beneficiaries must pay particular attention to the principle of proportionality (no harm approach), the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of persons, the right to non-discrimination, the need to ensure protection of the environment and high levels of human health protection. The beneficiaries must ensure that the activities under the action have an exclusive focus on civil applications.

3 RESEARCH INTEGRITY (TENK/ALLEA)

VTT has committed to follow the guidance of The Finnish National Board on Research Integrity TENK (Tutkimuseettinen neuvottelukunta): Responsible Conduct of Research, RCR (Hyvä tieteellinen käytäntö, HTK) and ALLEA's European Code of Conduct also obliges Finnish researchers. The European Commission requires all projects receiving funding from the EU to commit to the principles of the ALLEA Guideline. https://allea.org/code-of-conduct/

As stated previously in GA section, the EC has adopted Ethics and research integrity principles from The European Code of Conduct for Research Integrity[3] document provided by ALLEA - All European Academies –group. ALLEA document states that," good research practices are based on fundamental principles of research integrity. They guide researchers in their work as well as in their engagement with the practical, ethical and intellectual challenges inherent in research".

The fundamental ethical principles are:

- reliability in ensuring the quality of research reflected in the design, the methodology, the analysis and the use of resources;

- honesty in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair and unbiased way;

- respect for colleagues, research participants, society, ecosystems, cultural heritage and the environment;

- accountability for the research from idea to publication, for its management and organisation, for training, supervision and mentoring, and for its wider impacts and means that beneficiaries must ensure that persons carrying out research tasks follow the good research practices and refrain from the research integrity violations described in this Code.

Naturally, continuous supervision and guidance is made by the management of the LITHOS project regarding to following contexts defined by ALLEA in regard to Research Integrity:

- Research Environment

[3] European Code of Conduct for Research Integrity of ALLEA (All European Academies) http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf

- Training, Supervision and Mentoring
- Research Procedures
- Safeguards
- Data Practices and Management
- Collaborative Working
- Publication and Dissemination
- Reviewing, Evaluating and Editing

VTT support for research ethics and ethics in general

VTT provides support for research ethics:

- VTT's ethics committee
- Research Integrity Advisors (RIAs)
- VTT OPINET online -course on research ethics and responsible conduct of research

Beside research integrity related themes VTT's ethics committee will provide support for any ethical issues that the LITHOS project may have.

4 IDENTIFIED ETHICAL ISSUES

4.1 HUMANS

The LITHOS project does not foresee the involvement of human volunteers for its planned activities, except for potential survey or interviews for the clustering activities (WP6), and dissemination, communication, and outreach activities (WP7), e.g. for the stakeholder analysis and for the production of the flagship documentary. No sensitive personal data will be collected. Subject to the requirement of national/EU ethics guidelines/regulations, all participants are adults and able to give informed consents and their participation will be on a voluntary basis pending their acceptance of the informed consent modules. Informed consent will be prepared in languages understandable by the volunteers and will include information about the project activities, the objectives, and the anticipated outcome. Information on data processing methods, data privacy protection, handling of personal data and other rights of the participant will also be informed. The participants engaged will be informed on their right to participate, decline to participate, or withdraw from the project.

LITHOS partners will follow the national/EU ethics regulations and legislations, including the General Data Protection Regulation (Regulation EU 2016/679).

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4.2 PERSONAL DATA

This ethics issue is addressed by the fact that no personal sensitive data will be collected in LITHOS. Information regarding data anonymization, storage, and access to the data will be provided. Regarding the data processing, all personal details and identification obtained from LITHOS activities (e.g. in surveys, documentary interviews and workshop/events enrolments) are handled according to the legislative requirements and EU GDPR principles and will be kept confidential in any public documents that may be produced using the data. The access to personal data of the volunteers is limited to the dedicated partners' employees who have a need to know for the purposes of the research. If there is a processor processing personal data on behalf of any controller, said controller is responsible for entering into a data processing agreement with said processor and providing legally required information to the data subjects. All partners that are involved in processing volunteers' data are accountable for the compliance with the applicable legislative requirements. A data Management Plan will be prepared at the latest 30.6.2024.

LITHOS will comply with national legislative requirements and EU GDPR principles to handle and process Personal Data.

4.3 NON-EU COUNTRIES

LITHOS partners are all located in the EU countries. We do not foresee project's research activities to be carried out in the non-EU countries. As exploitation potential and beyond the scope of the project, LITHOS partner, Imerys has the ambition to not only valorise its EMILI project in France but also in some of its other mining sites, such as St. Austell in UK.

For Partner Imerys' EMILI project, if research is needed in its St. Austell mining site in UK, then it will be performed following EU and UK laws and taking into account maximum security principles.

4.4 ENVIRONMENT, HEALTH AND SAFETY

The LITHOS project at large will address the risks to health and safety of LITHOS flowsheets through LCA and health & safety assessment (WP5). The project does not involve the use of potentially harmful substances, processes, technologies, organisms or materials in a manner that raises significant concerns about individual security or safety or the protection of public health. In the innovative process development, potential hazardous chemical substances might be used (e.g. solvent, chlorides, in WP2 &3). In this instance, appropriate occupational health and safety will be followed by all researchers in the LITHOS project partner organisations.

VTT (Coordinator) complies with National and European legislation on Protection of Environment and Occupational Safety. Partners from LITHOS have their own Occupational Health and safety procedures that comply with their national legislation. Appropriate health and safety procedures conforming to relevant local/national legislation will be followed for staff and for avoiding any harm to the environment, animals and plants.

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4.5 ARTIFICIAL INTELLIGENCE

LITHOS does not foresee the use of Artificial Intelligence (AI) technique in its current work plan. In the unlikely event, and if AI technologies evolve and become relevant to the project, for example in WP4 applications of digital twins (e.g. in optimisation of mining process), LITHOS will follow the EC High-Level Group on AI's "Ethics guidelines for trustworthy AI" to guide the design of the AI systems towards ethically sustainable solutions. Special attention will be paid to, e.g. human agency and oversight, technical robustness and safety, and societal and environmental well-being. Ethics is a central viewpoint in the evaluation activities. This supports identifying unforeseen ethical concerns and reacting to them to prevent potential harm.

5 RISK MANAGEMENT

Project risks and deviations are evaluated, assessed, and handled at EXCOM meetings. The critical risk table is updated in the EXCOM meetings, and the most critical risks are discussed also in the General Assembly. The risks, their impact and probability are analysed carefully, and potential new risks are identified during the project. If some of the risks and/or their mitigation strategies have a substantial effect on the budget, time schedule or the objectives of the work packages, they will be discussed in the General Assembly Meeting and potential changes in the Grant Agreement will be proposed to the Commission.

In addition to project risk evaluation, occupational safety risks are assessed by the partners using their own occupational safety protocols and templates. The partners shall take the nature of the work and activities into account, and systematically and adequately analyse and identify the risk factors and hazards caused by the work. When the risk factors and hazards cannot be eliminated, the partners need to assess their consequences to the employees' safety and health. Risk assessments are carried out to evaluate the significance of risk factors and hazards from the perspective of the health and safety of personnel.

If the risks cannot be reduced to an acceptable level even with technical measures, the activities or work performance must not be carried out. Eliminating or reducing risks should follow the order of priority:

- Primarily, hazards must be prevented from arising.
- If prevention is not possible, the risk factor or hazard is eliminated.
- If elimination is not possible, a less hazardous alternative is selected.
- The risk is reduced with protection techniques.
- Other safety measures (e.g. instructions, warning signs, training) are used.
- Personal protective equipment is used.

6 CONCLUSIONS

The LITHOS project management procedures and quality practices including topics on organizing meetings, document management, and risk management, have been described in this Project Quality Management Plan. The procedures described in this deliverable should be followed by every partner to ensure the proper and successful management and execution of the project.

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