

Technical Reviewers' Rating Summary

Proposal Number **G-55-03** Application Title **UND's Department of Petroleum Engineering** Submitted By **UND Petroleum Engineering**
 Request For **\$2,980,000.00** Total Project Costs **\$6,613,930.00**

Section A. Scoring

Statement	Weighting Factor	G-55-03A	G-55-03B	G-55-03C	Average Weighted Score
1. Objectives	9	4	4	3	27
2. Achievability	7	4	4	3	21
3. Methodology	8	3	3	3	24
4. Contribution	8	4	4	2	24
5. Awareness / Background	5	3	4	4	15
6. Project Management	3	2	3	3	6
7. Equipment / Facilities	2	3	3	3	6
8. Value / Industry - Budget	4	3	3	3	12
9. Financial Match - Budget	4	3	3	3	12
Average Weighted Score		171	179	147	165
Total: 50					250 possible points

OVERALL RECOMMENDATION

FUND	X	X	
FUNDING TO BE CONSIDERED			X
DO NOT FUND			

Section B. Ratings and Comments

- The objectives or goals of the proposed project with respect to clarity and consistency with North Dakota Industrial Commission/Oil and Gas Research Council goals are:

The objectives of the proposal are very clear and are a continuation of the program that the NDIC has funded historically.

- Reviewer: G-55-03A
- Rating: 4

The proposal provides objectives related to supporting PE Phd graduates at UND and development of an automation and data hub.

- Reviewer: G-55-03B
- Rating: 4

This project appears to align primarily with the educational goals of the NDIC/OGRC regarding promotion of petroleum engineering education at UND, but also possesses a research component in regard to use of funds to enhance and operate the DRACOLA facility at UND

- Reviewer: G-55-03C
- Rating: 3

We are fully committed to use this fund to promote the education and industry support in ND and become one of the top institutes in the nation and worldwide for oil and gas practical and hands on education.

- Applicant

2. With the approach suggested and time and budget available, the objectives are:

The UND Department of Petroleum Engineering has historically delivered on similar proposals and based on information provided, the objectives should be obtainable.

- Reviewer: G-55-03A
- Rating: 4

The objectives are achievable.

- Reviewer: G-55-03B
- Rating: 4

If estimated costs for the tuition and PHD support are accurate, it should be sufficient. The timeframe is essentially locked into the scholastic schedule for two years.

- Reviewer: G-55-03C
- Rating: 3

The proposed budget are partial coverage of tuition and GTA/GRA based on UND rates

- Applicant

3. The quality of the methodology displayed in the proposal is:

There was not a lot of detail on the what the PhD students would be focus on, but rather a continuation of the program that is currently in place.

- Reviewer: G-55-03A
- Rating: 3

No comment

- Reviewer: G-55-03B
- Rating: 3

This is an extension of a prior petroleum engineering program that appears to have been successful in maintaining an above average enrollment in the petroleum engineering graduate student program, during an oil and natural gas industry downturn, that during the same period, resulted in depressed undergraduate enrollment.

- Reviewer: G-55-03C
- Rating: 3

We hope to see the undergraduate enrolment to pick up again with all the effort we put in place in terms of outreach activities and support of the State and the industry. At this time the growth of grad students population is a good model to keep the department live and support the industry.

- Applicant

4. The scientific and/or technical contribution of the proposed work to specifically address North Dakota Industrial Commission/Oil and Gas Research Council goals will likely be:

The need for a highly technical workforce in the ND Oil & Gas Industry continues and will for the foreseeable future. The UND Petroleum Engineering program continues to deliver the workforce to make future advancements in the Oil & Gas industry possible and can help maintain the viability of the hydrocarbon industry.

- Reviewer: G-55-03A

- Rating: 4

The proposed program will help provide well educated PE Phd graduates ready to engage within the State of North Dakota and contribute to increasing the value and recovery of the State's natural resources.

- Reviewer: G-55-03B

- Rating: 4

This is largely an educational grant request, but it is possible that some research results could be seen from the use of DRACOLA by the funded graduate students.

- Reviewer: G-55-03C

- Rating: 2

We already seen the interest of industry for the use of DRACOLA and hope that its operation can support the industry by providing practical solutions.

- Applicant

5. The background of the principal investigator and the awareness of current research activity and published literature as evidenced by literature referenced and its interpretation and by the reference to unpublished research related to the proposal is:

The UND Department of Petroleum Engineering is fundamentally about research and publishing literature.

- Reviewer: G-55-03A

- Rating: 3

The principal investigator is well qualified for the proposal.

- Reviewer: G-55-03B

- Rating: 4

The principal investigators and named associate professors possess a substantial level of expertise and awareness in their respective fields of expertise in petroleum engineering.

- Reviewer: G-55-03C

- Rating: 4

Thank you.

- Applicant

6. The project management plan, including a well-defined milestone chart, schedule, financial plan, and plan for communications among the investigators and subcontractors, if any, is:

The information on the financial plan was limited to a summary table of the costs associated with the enrollment 30 PhD students.

- Reviewer: G-55-03A

- Rating: 2

See comment below regarding the communication plan. This proposal is forward looking to promote Petroleum Engineering PHD graduates in the future, so the project management plan is structured around measures such as engagement in industry conferences, publishing relevant and impactful papers and in-State job placement rate.

- Reviewer: G-55-03B
- Rating: 3

Considering the type of grant application, primarily in the area of petroleum engineering, the normal educational curriculum schedule will likely control much of the work scheduling, but a proposed schedule of reporting to the OGRC is included.

- Reviewer: G-55-03C
- Rating: 3

We follow the instructions by OGRC in terms of the projects that students work on and do our effort to make them in line with the industry applications.

- Applicant

7. The proposed purchase of equipment and the facilities available is:

The facilities are existing and there is no significant equipment purchases identified in the proposal.

- Reviewer: G-55-03A
- Rating: 3

Equipment and facilities purchases are minimal for this proposal.

- Reviewer: G-55-03B
- Rating: 3

Most equipment purchases are related to the DRACOLA facility and are primarily industry software provisions or donated drilling equipment.

- Reviewer: G-55-03C
- Rating: 3

The majority of the lab set up is complete but still need to add more components to make it fully automated for data collection and data analytics.

- Applicant

8. The proposed budget “value”¹ relative to the outlined work and the commitment from other sources is of:

The proposal identified outside commitments and support from the Oil & Gas industry. Not a lot of detail provided.

- Reviewer: G-55-03A
- Rating: 3

The projected work and technical outcome for the budgeted work is reasonable.

- Reviewer: G-55-03B
- Rating: 3

As an education dominated grant request, it is difficult to compare to typical industry cost for similar research value. The more the DRACOLA facility is utilized, the more likely the value will increase relative to other research sources.

- Reviewer: G-55-03C
- Rating: 3

This investment has proven to be of direct support to ND industry and promoting the oil and gas education and research in the State.

- Applicant

9. The “financial commitment”² from other sources in terms of “match funding” have been identified:

The proposal identified outside commitments of industry resources to cover the the matching funds; however, no details wer provided.

- Reviewer: G-55-03A

- Rating: 3

Applicants have secured significant matched funding, primarily in the form of in-kind equipment, software licenses and consulting, meeting the requirements.

- Reviewer: G-55-03B

- Rating: 3

The industry share component is greater than 50% of total project cost for the two-year duration of the grant request. Several industry partners are involved, particularly with the DRACOLA facility.

- Reviewer: G-55-03C

- Rating: 3

The industry cost share has seen to increase after seeing the benefits of providing support to the department and students and the quality of the work produced by students.

- Applicant

1 “value” – The value of the projected work and technical outcome for the budgeted amount of the project, based on your estimate of what the work might cost in research settings with which you are familiar. A commitment of support from industry partners equates to a higher value.

2 “financial commitment” from other sources – A minimum of 50% of the total project must come from other sources to meet the program guidelines. Support less than 50% from Industrial Commission sources should be evaluated as favorable to the application; industry partnerships equates to increased favorability.

General Comments

The UND Petroleum Engineering program and the proposed program as presented, provides a significant resource to the ND Oil & Gas Industry its highly technical workforce needs. The future of a successful Oil & Gas Industry in North Dakota will continue to be challenged. The ND Oil & Gas Industry will need successful programs such as outlined in this proposal to help meet the future challenges. Recommendation is fund the project.

- Reviewer: G-55-03A

Communication between applicants (UND PE Dept) and OGCR are addressed in the application. I strongly recommend regular and structured communication sessions between the two groups to insure regular feedback and input, and to provide the opportunity adjust the project goals as appropriate during the 2 year term.

- Reviewer: G-55-03B

This program is important to maintaining a viable petroleum engineering program at UND, at all levels from under-graduate to PHD, so the state can continue to grow our own workforce. With competition around the country for a limited number of prospective petroleum engineering students and high value oil and gas industry workers, it is essential we show the world that ND is serious about developing a world-class petroleum engineering department that produces world-class research.

- Reviewer: G-55-03C