

**NERC Centre for Doctoral Training (CDT) in Oil & Gas****Industry Advisory Board Meeting****2nd November 2017, 11 a.m. – 1 p.m.****Board Room, Enterprise Building, Heriot-Watt University****MINUTE OF THE MEETING****ATTENDEES:****Industry Advisory Board Members**

Keith Gerdes (Chair)	(KG)
John Underhill (HWU; CDT Lead)	(JU)
Husnein Ahmed (Total)	(HA)
Patrick Bermingham (Shell)	(PB)
John Clayburn (Cairn Energy)	(JC)
Russell Reekie (Verus Petroleum)	(RR)
Andy Robinson (Statoil)	(AR)

INVITEES:

Anna Clark (HWU; Training Academy and HSE Officer) (AC)

Lorna Morrow (HWU; CDT Manager) (LM)

Welcome and apologies

JU welcomed everyone to the meeting, outlined the HSE provision and thanked companies for their support and attendance before handing the Chair to KG.

KG welcomed all representatives. Skype connection issues meant that John Bunney, BP's IAB representative, was unable to join the meeting and apologies are extended to him.

Review of actions from IAB meeting, 8th November 2016

ACTION@8 th November 2016	AGENT – Update @ 2 nd November 2017
Circulate JU PowerPoint 2016 conference presentation with minute	LM Completed



Provide information pack highlighting CDT projects/ supervisors/ hosting universities, student achievements, Training Academy programme and key CDT performance metrics for use by industry representatives in discussions with their Management regarding subscription renewal	LM / JU Circulated on 12/12/16 with updated versions in April and September 2017 when requested by companies
Follow-up with BP representative, JB, regarding involvement of Environmental Compliance manager as future IAB representative to provide a different perspective from the current production focus, as well as providing input to Training Academy courses linked to the Environmental Impact & Regulation research theme	LM Lasting connection not yet made i.r. o. training programme. Assistance was provided to resolve technical/data issue for 2014 cohort student
Circulate CDT Young Professional Mentoring Scheme guidance document to IAB members with request to provide two new volunteer mentors per company for 2016 cohort	LM Completed. Statoil has provided 6 new mentors
Update Supervisor Roles and Responsibilities document to remind academic partners of the need to review data access and confidentiality agreements regularly as well as consulting with CDT Awards Committee if project title changes during the studentship to ensure that there is no overlap with other CDT projects and potential negative consequences for students	LM Completed. One request had been received and approved by the Awards Committee
Circulate PhD project listing for October 2017 entry to industry partners so they can review and see if there are projects they could offer additional support to in terms of data, co-supervision etc.	LM Completed
Updated course feedback for Training Academy courses from May 2016 onwards to be circulated to IAB members	AC Documents covering all courses to date for each entry cohort were tabled at the meeting.
Include companies in PhD project call to universities in May 2017 for suggested research topics for October 2018 entry if CDT extension/renewal is agreed. This gives industry partners an opportunity to design and propose additional projects to a supervisor of their choice (on the clear understanding that the host university may not support it as one of their CDT projects submitted to the Awards Committee and potentially advertised if approved)	LM No call has yet been made for PhD project titles for 2018 entry as funding has not yet been secured or a revised CDT model agreed with academic and industry partners in the absence of any external funding.
Reports from CDT Committee Chairs to be circulated to IAB members as soon as these are supplied	LM Training Academy 2016 report circulated with draft minute on 30/11/16



Graduate Committee Chair is currently on a year's sabbatical and discussion with him regarding replacement is requested	JRU Stuart Clarke (Keele) assumed temporary Chair responsibilities for meeting held on 06/03/17. He also became the CDT academic Associate partner representative on the Management Committee
Companies to provide details of their Geophysics training personnel as possible contacts for the CDT Training Academy Programme	AC Outstanding item carried forward; a request will be made via IAB members
Companies to provide details of the number of internships available, and the key application dates to inform students of opportunities	LM 2014 cohort students successfully applied for internships at Statoil and BP

Update on Industry Advisory Board membership

E.On was acquired by Premier Oil and OMV UK by Siccar Point; both companies had given a 3 year commitment to fund the CDT (2014/15, 2015/16 and 2016/17) with the option to renew on a single or 3 year rolling basis. Unfortunately their new managements have elected not to renew. Alwyn Year of Woodside Energy has returned to Australia and the company has decided not continue with its rolling one year commitment. These companies no longer have access to the CDT students, research or training events.

Centralisation of technology/JIP funding and local budgetary issues meant that ConocoPhillips UK was unable to re-engage with the NERC CDT upon completion of the initial three year phase and so was not in attendance at the meeting. *Note subsequent to meeting: The company sees the value and benefits of the program to both academia and industry in the UK, and has been able to resolve the issue by elevating the profile of the CDT internally and securing new funding. ConocoPhillips UK is pleased to be able to re-join the IAB and looks forward to the continued success of the program.*

Current CDT IAB membership therefore comprises the following seven companies: BP, Cairn Energy, ConocoPhillips UK, Shell, Statoil, Total and Verus Petroleum. KG welcomed HA, PB, RR and AR as the new representatives of their companies.

Review of 3rd year of CDT operations

Delivery of Training Academy 2016/17 session programme New mandatory courses for the 2014 cohort in Decarbonisation & Future Energies and Subsea Hazards were successfully delivered. The Environmental Science course for the 2015 cohort was delivered in partnership with 4 other NERC CDT/DTPs (EnvEast DTP, SPITFIRE DTP, NEXUSS CDT and DREAM CDT) at the University of East Anglia and was funded separately via a NERC Added



Value grant as a joint bid. Mandatory courses for other courses all ran as per previous years' schedules.

Student Feedback The method of collection of course feedback was discussed by the Graduate Committee and it was agreed that the system would move to an anonymised online survey rather than the paper copy system initially implemented. The use of a 3rd party online survey supplier means that we cannot know or retain personal details so returns would now be anonymised. The hope was that this feature might increase the return rate and encourage more students to provide additional comments which are more useful than the tick box answers. However, the survey return rate remains at @70% for all courses. Members discussed various means by which students could be encouraged to complete the survey e.g. timetable survey completion time included in the final course session, offer a reward e.g. Amazon voucher for completing survey. Although members felt the current return rate is lower than it could be, it was agreed that 70% is still acceptable and no changes should be made to the current online system. Members asked that pdf copies of the cohort feedback tabled at the meeting be circulated with the minute, and that the numbers of students attending the course should be added to all charts.

Update on funding model for the Training Academy programme Taking into account the funding commitments of the current IAB membership, the TA budget continues to show a modest surplus. The training requirement for the 4th cohort and the TA/HSE Officer's post for 2 years from November 2018 have been included in this calculation. The separate NERC Innovation/Added Value grant has covered the TA/HSE Officer's post to date.

Student recruitment and impact on funding model Glasgow and the National Oceanography Centre chose not to participate in the 4th cohort, and Oxford moved from core to associate status so has reduced its intake from three to one student for 2017 entry. This leaves one NERC Doctoral Training Grant studentship to be re-allocated across the partnership which will be discussed at the subsequent Management Committee (MC) meeting. *Note subsequent to meeting: MC members agreed to Imperial having this studentship with the proviso that they defer another of their own funded studentships for the 2017 entry cohort to a new 2018 cohort.*

In the Spring Budget 2017, the Chancellor announced a National Productivity Investment Fund (NPIF) and the CDT had successfully bid for 10 NPIF studentships from NERC's allocation. This is the largest allocation made by NERC across all its CDT/DTPs. The NPIF studentships were allocated across the CDT partnership in the same proportion as the standard NERC Doctoral Training Studentships and to projects which met the priority areas identified in the UK government's Industrial Strategy. The condition for receiving an NPIF studentship, which effectively replaced their own institutional funding for the 2017 cohort, was that the CDT partner university agreed to defer their 2017 funding to support a new 2018 cohort.



Reports from other CDT Committees Reports were tabled by the Chairs of the Graduate and Training Academy Committees and these are included in the appendix to this minute. The report from the Awards Committee Chair is also now included in the appendix.

Industry expectations of the CDT

Members discussed possible metrics to demonstrate the success and impact of the CDT model. NERC is primarily looking to the impact of the research and graduate employment in government, academia and industry. IAB members valued access to world class research and to well-trained, high-flying graduates with field trip experience, commercial awareness as well as the reputational value to be gained from association with the CDT. LM will email IAB members for their list of metrics and compile these into a document with an update on evidence for each metric. Each industry partner can then weight the metrics according to their own priorities. JC noted that as a small exploration company, Cairn is interested in the integration of disciplines which the CDT promotes in its student cohorts.

Future Training Academy module provision The trend for companies to explore new energies has been addressed by the CDT's 3rd year mandatory course in Decarbonisation and Future Energies. The CDT also has a reciprocal training arrangement with NERC's CDT in Carbon Capture Storage & Cleaner Fossil Energy. A number of representatives highlighted current interest in Artificial Intelligence (AI), Machine Learning (ML) and Big Data and links to sub-surface technologies, the exploration for new assets and what is required of large datasets in order to be able to make use of AI and ML techniques.

Internship opportunities Seven students from the 2014 cohort of 26 students had obtained internships in the 3rd year of their studies. AR reported that the CDT PhD students they had taken in their 2017 internship scheme comprised a significant percentage of their total intake. Projects for these students had been deliberately chosen to match their enhanced skills and the results had been very pleasing for the students and Statoil.

Renewal/Future Commissioning of CDT beyond current 2017 entry cohort

JU reported that NERC will not be renewing any of its CDT partnerships. NERC announced a call for a new CDT in either Sustainable Energy (SE) or Terrestrial Ecology (TE) during 2017 which resulted in three bids in SE and two in TE making it through to the final stage. JU stated that he had hoped that our CDT could progress via that route but as some key partners were intent on bidding separately, that became impractical and would have resulted in a new and different partnership from the current CDT. HWU submitted a bid with different partners but that did not progress to the final stage. Of the five bids under consideration, the final award was made for one of the Terrestrial Ecology CDTs, meaning that all the Sustainable Energy ones failed.

The Engineering & Physical Sciences Council (EPSRC) will be making a call for CDT themes in 2018, but the bid process will not be completed in time to allow for an entry cohort in October 2018 to continue this CDT. However, the current CDT would be tabling an Expression of Interest shortly.



JU reported that he is visiting UK Research & Innovation (UKRI) in Swindon at the request of NERC and EPSRC on Monday 20th November and will also meet with representatives from the Department of Business, Energy & Industrial Strategy (BEIS) there. He outlined the current possibilities for continuation of this CDT for a 2018 entry cohort as follows:-

- It is possible that the Chancellor or BEIS will announce another tranche of National Productivity Investment Fund (NPIF) studentships in the Autumn Statement or separately as part of a renewal of last year's scheme. If that transpires and NERC is consistent, we may see a similar allocation of ten NPIF studentship to this CDT which would place us in a great position since it would match the NERC studentship allocation in the original grant. With that funding, the studentships HEIs deferred from the 2017 cohort due to the award of NPIF studentships in 2017 and CDT core partner funding remaining at two studentships, we would be in a position to create a similarly-sized cohort of @30 students
- CDT academic partners use their deferred 2017 institutional funding and designate other funding they have secured e.g. from governments, industry, trust funds to CDT projects and self-funded students could also now be eligible. This could result in a smaller cohort as it is likely the 2:1 ratio for core partners and 0.5:0.5 ratio for associates would be broken
- Industry makes use of the NERC [Industrial CASE](#) studentship fund which NERC has traditionally had difficulty in fully allocating. CASE studentships cost companies a minimum of £1k p.a. and they have to commit to hosting the student for between 3 and 18 months in the workplace. KG has experience of participating in the Industrial CASE scheme from his time at Shell and suggested that company involvement was @£7.5 k p.a. as the company was expected to cover the costs of necessary research materials for example. This could be the equivalent of the Research Training & Support Grant (RTSG) which amounts to £20k over four years for current CDT students whereas the amount provided by NERC in the Industrial CASE studentship scheme is only £11k. Details of the 2017 call are attached to this minute but elements could be revised for the 2018 call. The situation regarding tax for these studentships needs to be explored by companies but is likely to be the same as for their CDT subscription payments. Representatives noted that participating in a CASE studentship would increase the annual amount provided to the CDT by the cost of their contribution to the studentship as the £40k would still be required to fund the ongoing training requirements of any new cohort.
- In addition to the NERC-facing opportunities that industry partners might contribute to, the IAB were of the view that the CDT program could open up to other funded PhDs including those on industry-sponsored Joint Industry Projects (JIPs) – subject to the CDT academic partners agreeing, the same PhD project review applying and the high standard of HEI recruitment procedures being maintained.



It was noted that any industry-sponsored projects in 2018 would need to be free of any confidentiality agreements to allow the students free access to publish.

On the basis of the discussion, there was agreement that the six industry partners would support an extension of the scheme to enable a fifth cohort to be recruited, albeit one that may be smaller in number. In the event of there being a greater opportunity through the award of further NPIF or NERC CASE studentships, JIP funds or NERC deciding to otherwise renew, it was agreed that the numerical ceiling should remain at 30 students per entry cohort.

Due to time constraints, the meeting adjourned to the Edinburgh Business School for a working lunch at which the following items were discussed and finalised:

Review of Management Committee agenda for 02/11/17 meeting to prepare IAB Chair's comments to that meeting

A summary of the discussion and main actions was agreed for KG to table at the subsequent CDT Management Committee meeting that afternoon.

Future IAB Chairmanship

KG stated that as he had now retired from Shell, it may be appropriate for him to step down as Chair of the IAB. He noted that he would be prepared to continue in the role as an independent Chair. It was agreed that the discussion would be taken offline and be subject to discussion by the six company representatives. It was agreed that this would take the form of an email round-robin with an outcome being conveyed to the CDT management and relayed to KG by the end of November.

Any Other Competent Business

JU informed the meeting that the CDT had successfully applied to The Geological Society (GS) for professional accreditation of its Training Academy programme and this would be announced at the Annual Conference the following day. This is a further endorsement of the value of the CDT's training programme with its substantial field work component. A number of universities are at risk of losing GS accreditation of their undergraduate and MSc programmes as they have reduced the amount of fieldwork. JU reported that additional benefits include the fact that the accreditation allows CDT students to have credit when seeking Chartered Geologist (CGeol) status. Furthermore, it means that industry trainers would be credited with Continuous Professional Development (CPD) units.

Date of Next meeting

The date of the next meeting would be subject to a Doodle Poll to be circulated in the New Year. The IAB anticipated that there might be a need for an interim meeting in six months' time to review progress with the extension and another to coincide with next year's annual conference.



Actions and agents

ACTION@2 nd November 2017	AGENT
Companies to provide details of their geophysics training personnel as possible contacts for the CDT Training Academy Programme	AC
Circulate pdf copies of cohort course feedback reports, including numbers of students attending each course / survey response rate, to members. <i>Note subsequent to meeting: Overall response rates for first three cohorts to Dec 2017 are 2014 – 69%, 2015 – 70% and 2016 – 79%.</i>	AC <i>Circulated by LHM email on 19/12/17.</i>
Source report from Awards Committee Chair	LM <i>Included in minute appendix</i>
Request metric suggestions from each IAB representative and then circulate a KPI document with current evidence for companies to weight according to their own priorities. Circulated by email 19/12/17	LM <i>Draft KPI document circulated by email 19/12/17</i>
IAB members to discuss ongoing chairmanship of the Board via email and advise JU by end of November 2017	JU / all IAB members
Circulate Doodle Poll to determine need/date for interim IAB meeting to review progress regarding CDT renewal and opportunities for 2018 entry cohort	LM



APPENDIX

Report from Awards Committee Chair, Professor Kevin Taylor (provided 08/11/17)

The Awards committee was chaired by Kevin Taylor, and comprised Keith Gerdes, Richard Swarbrick, Alan Roberts, Al Fraser and Dorrik Stow. It held a half day telecom meeting to discuss each PhD project outline and considered each for (i) fit to the CDT themes; (ii) Novelty of the research; (iii) achievability of research proposed for the PhD student; (iv) availability of data needed for the research; and (v) expertise of the supervisory team. In addition, by viewing all submissions we were able to ensure that duplication across the CDT was minimised. We were in the position to approve the majority of the proposals with no further action needed. For a minority, the committee requested clarification prior to approval. In only a very small number of cases did we feel we could not approve, due to either duplication or concerns over the data set availability. Overall the committee felt that the range of projects provided breadth, were spread evenly across the CDT themes, and represented the needs of both the academic and industry community.

Report from Graduate Committee Chair, Dr Stuart Clarke (tabled at meeting)

Summary of Graduate committee meeting – 6th of March 2017

Discussion at the last graduate committee meeting focused primarily on two topics:

1) The training academy programme past and future

While graduate representatives provided direct feedback to the meeting on individual academy courses, the consensus among the student cohorts was that the training academy was excellent, valuable, worthwhile and thoroughly enjoyable. There was particular praise for industry-lead and industry-focused courses, which provide real insight into the industry, and for joint courses between year cohorts, which provide the opportunity to integrate with the years below and above. The graduate committee generally expressed their gratitude to those people from both industry and academia who gave their time and resources to provide academy courses.

The meeting provided the opportunity to convey to the student representatives some of the less-than-complimentary comments that have been received by the CDT board from course leaders regarding student etiquette. These issues range from non-engagement with teaching to behaviour on field based courses that may be construed as effecting health and safety. The student representatives were unanimously appalled by such behaviour and expressed their opinion that it was disrespectful to the course contributors and to the companies that fund the CDT training academy. It was generally agreed that trainees on CDT courses should behave in a manner commensurate with that expected of industry professionals on professional training courses. Consequently, it was prosed and agreed that 1) students and supervisors should sign a guidance document as an informal contract indicating their commitment to uphold the principles of the CDT when it comes to training etiquette, and 2) the student representatives would email their own cohorts with etiquette ground rules for training, to use peer pressure as a means of stamping out poor etiquette by the few.



2) Variations in CDT Student expectation within universities

The cohort has expressed some concern over disparities between expectations and requirements of CDT students between different universities. Some students have expressed concern over specific universities' annual reviews and progression procedures that require CDT students to perform to the same level as non-CDT students who do not have training commitments, particularly in the 1st year. Equally, students considering internships -which NERC strongly supports with extensions to completion dates - have come up against barriers from universities that insist on a maximum 4-year-from-start PhD submission date across the board, and do not take into account that the CDT PhD is already 4 years and funded for the entire period. It is difficult to see a clear answer to these problems while maintaining the obvious necessity for individual universities to administer their own PhD students in line with their own policies. Discussion centred on the role that the CDT representative in each university should play in these matters, and that perhaps these problems of disparity could be communicated to them so that they are fully aware.

Finally, fully aware of the time limits on the contracts of Anna Clark and Lorna Morrow, the student representatives expressed their gratitude for all of their hard work in organising the various aspect of the CDT, and offered whatever help they could to bring about extensions. It was clear from the meeting that the student body of the CDT is strong, supportive and fully engaged with what they consider to be a very valuable PhD programme. The commitment of the representatives to the committee on which they sit and the student body they represent is excellent and impressive, and it was clear from the enthusiasm of the 4th year in particular that they consider the CDT to be the 'cream' of PhD schemes in their field.

Report from Training Academy Committee Chair, Professor Andy Aplin (tabled at meeting)

1. Committee met August 2017
2. Generally very good feedback on courses. Some comments that 2 week courses are too long; we do not provide much training for the more environmental contingent and getting the right balance of training for people with different backgrounds is sometimes challenging. Overall, some relatively minor negatives amidst a sea of general positivity.
3. Overall, we feel that the training adds significant value to the PhD and gives the students technical and generic skills which will enhance their employability in and outside the oil & gas industry.
4. Some students have themselves sourced some of their optional modules. The Committee has been generally supportive of this approach in that the CDT is not able to provide the more specialist training. Courses are checked to ensure that they meet CDT quality guidelines. A minor annoyance is that students tend to ask if courses can be counted after they have taken them, despite clear guidance to ask in advance.
5. Into the future, we need to evaluate the training component of any new CDT, ensuring sustainability in terms both of finance and also time.