

## Nuclear Criticality Safety Division

### Minutes from the ANS NCSD Executive Committee

Hyatt Regency – Hanover E Atlanta, GA ANS Summer Meeting Sunday 16<sup>th</sup> June, 2013

### 1. Call to Order

The Executive Committee Chair, Larry Wetzel, convened the meeting at approximately 3pm. All of the Division Officers were present. The serving Division Officers are as follows:

Position	Name	Phone	E-mail Address
Chair	Larry Wetzel	(434)522-6580	llwetzel@babcock.com
Vice Chair/ Chair Elect	Sandi Larson	(865)483-8247	sandi.larson@nuclearassociates.com
Treasurer/ Finance Chair	Robert Maurer	(423)735-5583	rsmaurer@nuclearfuelservices.com
Secretary	Deborah Hill	+44 (1772)-764359	deborah.a.hill@nnl.co.uk
Past Chair (ex officio)	Doug Bowen	(865)576-0315	bowendg@ornl.gov

A total of four out of nine members of the Executive Committee were present. The serving Executive Committee members are as follows, with those not able to participate indicated with an asterisk (\*):

Term Ending	Name	Phone	E-mail Address
June of (Year)			
2013	Nick Brown*	(423)753-5519	NWBrown@nuclearfuelservices.com
2013	Adolf Garcia*	(208)526-4420	garciaas@id.doe.gov
2013	Chris Robinson*	(865)574-8509	robinsonrc@y12.doe.gov
2014	Michael Corum*	(803)873-9591	michael.corum@nuclearassociates.com
2014	Chris Haught*	(865)576-5522	haughtcf@y12.doe.gov
2014	Allison Miller	(505)301-7426	admille@sandia.gov
2015	John Bess	208-526-4375	john.bess@inl.gov
2015	Brian Kiedrowski	505-665-0110	bckiedro@lanl.gov
2015	Thomas Miller	865-574-9909	tmmiller77@aol.com

The Chair noted that a total of eight Executive Committee members/officers was sufficient for quorum. Approximately 17 additional NCSD members were present providing broad nuclear industry representation. *{Refer to Appendix A for the Attendee Sign-In Sheets}* 

### 2. Approval of Previous Meeting Minutes

The minutes from the previous 2012 Winter Meeting (in San Diego, CA) were distributed in the meeting. The Treasurer noted that \$2,500 had been assigned to the NCSD Topical Meeting in the "Student / Young Member Support" section of the Proposed Budget for 2013, as requested by



## Nuclear Criticality Safety Division

Lon Paulson. The minutes were endorsed subject to this minor amendment. {<u>Secretary's Post-</u> <u>Meeting Note</u> – This amendment had already been captured under Agenda Item 11 of the proposed 2012 Winter Meeting minutes, and therefore no change to those minutes is required}

## 3. Chair's Report

The Chair provided an update on activities relating to the Professional Divisions Committee:

- a) Training material is available to new ANS members to provide guidance on the accessing of various reference material via the main ANS website;
- b) The 75<sup>th</sup> anniversary of Fission will be celebrated at the upcoming 2013 Winter Meeting, although the Chair noted that no special NCSD sessions were planned. The Chair reported that a four minute video had been produced by LANL; members were encouraged to contact Hans Gougar (the current Chair of the Professional Divisions Committee) for a copy on DVD;
- c) Queries had recently been raised regarding the electronic documentation of the interactions of the Divisions, with it quickly becoming evident that different practices were adopted across the Divisions. The Chair noted that the NCSD rarely has the need for additional meetings outside of the main ANS meetings;
- d) Another query had recently been raised regarding the location of the "official" Bylaws for each of the Divisions. Some Divisions believed it was the copy held on their Division website, whereas others had been advised that it was the copy held centrally by ANS HQ (although those versions were found to be out-of-date in some instances);
- e) The new NCSD budget is scheduled to be submitted around August / September this year; the Chair noted that a telecom or email meeting may therefore be required to approve the proposed budget.

The Chair also provided an update on the Division Chairs meeting with the ANS President (Mike Corradini). Some of the key discussion points were as follows:

a) In the Spring, the Executive Committee launched a study of all the products and services that ANS provides to its members. Their objective was to make sure that what ANS do on an annual basis is properly aligned with the ANS Strategic Plan, and that it was financially sound and sustainable. In order to get the input of members and the committee and professional development leadership, a survey was sent out to all ANS members. Almost twenty percent of the ANS members responded. The Executive Committee has analyzed these responses and identified 41 products that needed to be reviewed. These have initially been assigned into one of four categories, depending upon the importance of the work: (i) <u>No Change Required</u> – e.g. Nuclear News and National Meetings, (ii) <u>Modification Required</u> – e.g. Scholarships and the Nuclear Engineering Education for the Disadvantaged (NEED) program, (iii) <u>Cut Out</u> – e.g. Group Insurance, and (iv) <u>Defer</u> – e.g. Outreach Activities.



## Nuclear Criticality Safety Division

- b) In the case of the NEED Scholarship and the Congressional Fellowship, there was an intention to remove the designated funding from the Board but replace it as far as possible with (i) direct Division contributions, and (ii) Patron donations;
- c) ANS Globe (the e-newsletter from the ANS International Committee) will be made available via the ANS Website. The Radwaste Solutions magazine may be scrapped;
- d) In response to a query at the 2012 Winter Meeting, the Chair had queried whether both the presentations and the video materials associated with the NCSD Tutorials / Workshops could be made available via the NCSD website. However, he has not received an answer. The need still remains to ensure that training materials are made available to the wider NCSD membership, although it was important to not make this option so easy that it would severely weaken the business case for people to attend the meeting itself;
- e) The Chair also reported that there was to be a streamlining of ANS staff input to the Honors and Awards process (noting that this is not currently applied to Endowed Scholarships). It is hoped this change would make more money available to the Divisions.

### 4. Vice Chair's Report

The Vice Chair noted that she had been tasked with producing a list of Division Committee Chairs / Vice Chairs as part of her duties; this list will shortly be emailed to the Executive Committee for approval. {Secretary's Post-Meeting Note: This was issued to the Executive Committee for approval on 13<sup>th</sup> July 2013 and was accepted by a quorum via email voting.}

The Vice Chair also requested that all outgoing Division Officers produce a one page summary of their duties to pass onto their successors; such summaries were considered an extremely useful tool in enabling the incoming people to quickly familiarize themselves with their new roles.

### 5. Treasurer's Report

The Treasurer noted that the NCSD Division was in good financial shape with an "Excess Over Budget Funds" figure of \$21,163. The main expenses this year are \$4,450 for student support (with \$2,500 being provided for student support for the NCSD Topical Meeting). Unfortunately the 2012 NCSD Awards Dinner made a loss of \$914 due to a misinterpretation of some terminology within the contract. *[Refer to Appendix B for the full Treasurer's Report]* 

Jerry Hicks noted that support has traditionally been provided to the Student Conference. The Treasurer agreed, but noted that this would be covered under the budget for the coming year.



## Nuclear Criticality Safety Division

### 6. Division Committee Reports

### Program Committee: Allison Miller

Allison noted that the Program Committee had convened immediately prior to the Executive Meeting. Detailed minutes are available on request. A full technical program was planned for the 2013 Winter Meeting (in Washington, D.C.) and the 2014 Summer Meeting (in Reno, NV). She also noted the upcoming NCSD Topical Meeting and ICNC 2015 meeting (see Agenda Items 7 and 8 respectively). Finally, she indicated that Vefa Kucukboyaci of WEC had volunteered for the Program Committee Vice Chair position; approval would be sought from the Executive Committee via the email being circulated by the NCSD Vice Chair (see Agenda Item 4).

### Endowed Scholarship Special Committee: Robert Frost

In the absence of Robert Frost, the Chair noted that the Scholarship Fund was currently at \$15,566 of the \$60,000 Goal Figure. He encouraged all NCSD members to contribute. It was noted that there is currently 900 members within the NCSD, and hence other means of encouraging people to contribute needed to be sought (e.g. flyers and targeted emails). The Secretary indicated that she was keen to support this Committee going forwards.

### Scholarship Committee: Andy Prichard

A special welcome was given to Madison Martin from the University of Florida, who was introduced as the recipient of the 2013 NCSD Pioneer Scholarship. Andy noted that there had been four applicants for the scholarship this year (all with an interest in nuclear criticality safety), and he had personally been very impressed with the standard of the majority of the applicants. He also felt the overall process had been extremely successful this time round, and thanked all those who had contributed.

### Education Committee: Katherin Goluoglu

Katherin noted that the Education Committee had convened prior to the Executive Meeting. Detailed minutes are available on request. Some of the key discussion points were as follows:

- a) The "Integrating Nuclear Criticality Safety into Design" White Paper had been forwarded onto the Chair for issuing to the NCSD Executive Committee for final approval;
- b) Katherin indicated she was keen to progress a session for students / young criticality engineers at the 2014 Summer Meeting where they could talk through historic criticality accidents and how they might tackle the issues in the modern day;
- c) It had previously been agreed at the 2012 Winter Meeting that the annual recipient of the NCSD Pioneer Scholarship was now routinely nominated as a student member on the Education Committee; Madison had now assumed that role. The Chair also noted that Madison had kindly offered to compile the next NCSD newsletter.



## Nuclear Criticality Safety Division

## Membership Committee: Megan Pritchard

Megan noted that she now held a list of all NCSD members and was actively managing it on behalf of the Division. She noted that the numbers had decreased in the last couple of years, but were starting to pick-up again. In particular, she felt that a key focus needed to be on the Utility and Commercial areas.

## Publications / Newsletter / Web Site: Larry Wetzel

The Chair provided some detailed feedback on the NCSD Website. *{Refer to Appendix C for the associated Website Information}* 

The Chair noted that the goal is to publish the NCSD Newsletter within a month of each national meeting. Thanks were given to Mackenzie L. Gorham for coordinating the last newsletter which was issued in January 2013. All recent Newsletters are available on the NCSD Website. As mentioned earlier, Madison Martin from the University of Florida is kindly compiling the next Newsletter.

The NCSD website had been averaging about 480 hits per day, although there had been relatively few specific searches. About 85% of the visits come from within the US, but visits also came from 43 other countries. The Chair also asked for feedback from NCSD members on what other aspects they would like to see on the NCSD website.

### Honors and Awards Committee: Andy Prichard

The issues relating to the overspend on the NCSD dinner have been covered under Agenda Item 5. The associated contracts will be kept by the Division for future reference.

### 7. NCSD 2013 Topical Meeting

Lon Paulson announced that the next NCSD Topical Meeting on "Nuclear Criticality Safety in the Modern Era: Raising the Bar" is scheduled to be held in Wilmington, NC from September 29<sup>th</sup> – October 3<sup>rd</sup>, 2013. Full details are available on the dedicated NCSD 2013 website (<u>www.ncsd2013.org</u>), and the early-bird registration was now open. A full technical program with technical tours was being planned, with the technical program due to be finalized in the next couple of months. Lon noted that they were planning three sessions on "Methods", two sessions on "Analysis and Experiments", one session on "Programs / Training / Risk Assessment / Post-Fukushima", and one session on "Criticality Accidents and Response"; presentations are likely to be limited to fifteen minutes in length. A tutorial on SCALE was being planned, plus a banquet would be held at the Wilmington Convention Centre.

Lon indicated that the Topical Meeting Finance Committee had budgeted based on 190 participants at the meeting. He was personally hopeful that the meeting would generate approximately \$8,500 for the NCSD funds; worse-case, he believed this figure would be halved.



## Nuclear Criticality Safety Division

### 8. ICNC 2015 Meeting

It was announced that ICNC 2015 was scheduled to be held at the Omni Hotel in Charlotte, NC from September 14<sup>th</sup> – September 18<sup>th</sup>, 2015. The Vice Chair reported that a small organizing group of herself, Cecil Parks and Mikey Brady-Raap were continuing to liaise with ANS HQ to coordinate the event. Bob Busch had taken up an invite to be the General Chairman, and Elliott Whitesides has been approached about becoming the Honorary Chairman. Budgets were currently being worked-up, with it being hoped that the event would attract 300 people. A key meeting theme would be "35 years of International Cooperation in Nuclear Criticality Safety", and Charlotte was noted as being a key hub for the US nuclear industry. The next stage was to look for volunteers from the US and international community to participate on the various technical committees.

### 9. ANS Student Conference Presentation

Representatives from the ANS 2013 Student Conference Organizing Committee attended to give a de-brief on the student conference held in Boston, MA from April 4<sup>th</sup> – April 6<sup>th</sup>, 2013. The meeting was hosted by the ANS Massachusetts Institute of Technology Student Section, and was attended by a total of 637 students and professionals; the 536 attending students (from 54 different universities) set a new record for an ANS Student Conference, and 88 of them came from outside of the US. A total of 171 podium presentations and 65 poster presentations were made by student attendees. The organizers also noted that 11% of the funding for the conference was provided by the ANS Divisions.

The conference had been titled "Public Image of the Nuclear Engineer", and one of the highlights during the week had been filming for the "I'm a Nuke !" campaign, which is designed to reshape the public image of the nuclear engineer. More than 20 students were filmed for the campaign, and a few of the videos can be viewed online at <u>www.youtube.com/user/imanukecampaign</u>; when all of the videos have been edited, they will be released simultaneously in a launch event. Another highlight was the "pitch" contest at the embedded Nuclear Energy Innovation Summit which challenged students to present a novel application of nuclear science and technology in 90 seconds using a single slide, and then face 90 seconds of questions from a panel of judges. Four technical workshops were also offered during the meeting, including (i) a nuclear fuel management workshop offered by Studsvik, (ii) fast reactors, (iii) irradiation testing, and (iv) MIT's in-house Monte Carlo code called OpenMC.

The 2014 ANS Student Conference will be hosted by the ANS Pennsylvania State University Student Section. It is scheduled to be held from April  $3^{rd}$  – April  $6^{th}$  2014, with a conference theme of "iNuc: Innovations in Nuclear Technology"; the intention is to focus on the industry in twenty years time. The conference organizers indicated that they were hoping to arrange technical tours to various parts of the Three Mile Island facility. A request was also made to the NCSD membership to supply judges for the conference.



## Nuclear Criticality Safety Division

### 10. Old Business

No budget was proposed at this meeting, although the discussion under Agenda Item 3 was reiterated (relating to the new timescales for budget submission).

The Chair distributed a paper copy of the part of the NCSD Bylaws that had been updated to remove the Realism Committee, in line with the discussion at the 2012 Winter Meeting.

Andy Prichard provided an update on the EFCOG (Energy Facility Contractors Group) subcommittee on "Criticality Safety" that he currently chairs. This group had been set-up to facilitate interaction between nuclear safety and criticality safety practitioners. Andy has been running monthly telecom meetings and then issuing minutes / related emails; the meetings to date have included some detailed presentations on issues raised at various sites. Andy reiterated that his key interest was to improve the sharing of information throughout industry; in particular, he was keen to emphasize that the criticality safety challenges between DoE and NRC-regulated sites are generally the same, and that sharing information may help to resolve issues in each others areas. Anyone interested in ringing into the EFCOG meeting should contact Andy direct on <u>andrew.prichard@pnl.gov</u>, plus Andy was keen to hear from anyone interested in volunteering an operational issue from their own site (either verbally or through presentation slides).

### 11. New Business

It was announced that the new Division Officers for the 2013 / 14 term would be Sandi L. Larson (Chair), Jerry E. Hicks (Vice Chair), John A. Miller (Secretary) and Deborah A. Hill (Treasurer). The new Executive Committee members for the 2013 / 14 / 15 / 16 term would be James S. Baker, Catherine M. Percher and Ellen M. Saylor.

Tom McLaughlin noted that PHYSOR 2014 was scheduled to be held in Kyoto, Japan in late September / early October 2014, and he expressed some concerns that a session on Nuclear Criticality Safety was being scheduled without any apparent input from NCSD. It was understood that this session was to cover aspects such as (i) burn-up credit, (ii) benchmarks, (iii) validation & verification, (iv) spent fuel issues, (v) code validation, (vi) code development, (vii) criticality safety standards, (viii) criticality accident analysis, and (ix) operational practice; the previous meeting at Knoxville had focused more on burn-up credit issues. Attendees understood that it was a Class 2-sponsored meeting and hence there should be some opportunity to influence the content in conjunction with some of the other ANS Divisions (e.g. Reactor Physics). The Chair agreed to follow this issue up with the relevant groups.

Nominations were currently being sought for the Service and Technical Excellence Awards which will be presented as part of the 2013 Winter Meeting (in Washington, D.C.).

H. Lee Dodds attended the meeting on behalf of the Board of Directors and was keen to extend his congratulations to the NCSD as one of the smoothest-run Divisions within ANS (in his opinion).



Nuclear Criticality Safety Division

## 12. Adjourn

The Executive Committee Meeting was adjourned on time at approximately 4:30pm.



## Nuclear Criticality Safety Division

### **APPENDIX A – Attendee Sign-In Sheets for the Executive Committee Meeting (June 2013)**

### MEETING: NCSD EXECUTIVE COMMITTEE DATE / TIME: SUNDAY 16th JUNE 2013 ; 3-4-30pm

Name	Signature	Organization	Email Address
1 DEBORAH HILL	Deborah Hill	NNL	deborah a hill @ nnlo coouk
2 Sundi Larsm	Sendol	NSA	Sandi, larson Quudearassociates.com
3 Alyse Scurlock	alyn Sewlack	University of Florida	Lysey 3004 @ ufl. edu
4 VEFA KUCURBAACI	Vel K=	WEC	KUCUKOVn@ westing house .com
5 Dennis Mennerdahl	Dein Munde	EMS	dennis.mennerdahleems, se
6 Doug Bowen	JJS6 Bm	ORNL	bowendy @ orn 1.902
7 Jerry Hicks	berry Huln	NNSA	jerry, hicks@ unsa, doe, gov
8 Nichole Ellis	ahellez	SAIC/DOG NADO-0	ellis_9899@msn.com
9 Megan Pitchard	Munnitelad	NSA	megan.pritchard. Cnuclear associates. com
10 Mike Westfall	Rem Westfall	ORNL	Westfallrm@ornl.gov
11	- D		0
12			
13			
14			
15			
16			



### Nuclear Criticality Safety Division

### MEETING: NOSD EXECUTIVE COMMITTEE DATE/TIME: SUNDAY 16th JUNE 2013 ; 3-4.30pm

Name	Signature	Organization	Email Address
1 Alison Miller	SelesDmir	SML	admille spalie. for
2 Darby Kimball	Dephell	LUNL	Jskimball egmail.com
3 Brian Kiedrowski	7	LANL	bekiedro@Tanl.gor
4 Robert Maurer	Rhy S.A.	NFS	rsmource Onucleor Red services con
5 Lon Tankson	At-set of	GEH	lon. paulson ege.com
6 Tom Mc Laughtin	TP DI andle	Consultant	TPM@POBOX.COM
7 John D. Bess	Daultey	ZNI	John. Bess@ inl.gov
8 Catherine Percher	Sathen Percher	LLNL	percher 1 @ 11n1.gov
9 JAMES MORMAN	France	ANL	JAMORMAN BANL. GOV
10 Ckris Perfetti	Chi frig	ORNL	perfetticm @ornl.gov
11 Bred Rearden	Be hert	ORME	rearden Se contigor
12 David Erickson	AJEL	SRNS	DG_Erickson @ blueheron . MS
13 Andrew WPIRGES	$\sim$	POUNC	androw, pricherd & prunt.gov
14 Thomas & Miller	Planner W niell	ORNL	millertm @ ornl.gov
15 Larry Wetzel.	Auf	Bew	ilwettel@ babcock.com
16 Machin E. Marin	MmEller	UF	memartine ufledu



## Nuclear Criticality Safety Division

### APPENDIX B – Treasurer's Report (June 2013)

- 1. The Financial Statement from ANS HQ for December 31, 2012, is shown as Exhibit 1. On page 2, the NCSD Awards Dinner resulted in gross income of \$5,140 whereas the cost of the dinner was \$6,054.
- 2. The Financial Statement from ANS HQ for April 30, 2013, is shown as Exhibit 2. The main expenses this year are for student support at the amount of \$4,450. Note, \$2,500 has been provided for student support for the NCSD Topical Meeting.
- 3. The current balance is \$21,163.



Nuclear Criticality Safety Division

## EXHIBIT ONE

PAGE 1	AMERICAN NUCLEAR SOCIETY
	DIVISION FINANCIAL REPORT
	12/31/2012

### NUCLEAR CRITICALITY SAFETY DIV.

	BUDGET 12 MONTHS 2012	ACTUAL 12 MONTHS 2012	PAGE 2 REF.
REVENUES			
2012 MEMBER ALLOCATION DIVISION INCOME Committed funds (scholarship) TOTAL REVENUES	1,862 0 0 1,862	1,862 5,140 	1
EXPENSES NEWSLETTERS		0	2
AWARDS, PLAQUES	1,100	450	3
NATIONAL MEETING COSTS	250	6,054	4
DIVISION OFFICER EXPENSE	0	0	5
STUDENT SUPPORT	1,950	1,250	6
SCHOLARSHIP/NEED FUNDING	3,000	2,206	7
OTHER EXPENSES	500	0	8
TOTAL EXPENSES	6,800	9,960	
NET SURPLUS/(DEFICIT)	(4,938)	(2,958)	
FUND BALANCE 1/1/12	27,977	27,977	
FUND BALANCE 12/31/12	23,039	25,019	



# Nuclear Criticality Safety Division

## EXHIBIT TWO

PAGE 2	AMERICAN NUCLEAR SOCIETY DIVISION FINANCIAL REPORT 12/31/2012		
NUCLEAR CRITICALITY 043100	SAFETY DIV.		
1. DIVISION INCOME SPONSOR DINNER	5,140		
	5,140		
2. NEWSLETTERS			
	0		
3. AWARDS, PLAQUES 5/21/12 CROWN TROPH BEST PAPER - SHEAN I AWARD - STEVEN CLEI AWARD - JOHN MATTIN PLAQUE - MARIA LE TE	MONAHAN 25   MENT 300   IGLY 25		
	450		
4. NATIONAL MEETING NCSD DINNER SD 11/12			
5. DIVISION OFFICER EX	6,054		
6. STUDENT SUPPORT 5/31/12 STUDENT TRAV	EL SUPPORT 1,250		
7. SCHOLARSHIP/NEED 7/31/12 PIONEERS SCH			
8. OTHER EXPENSES	2,206		



Nuclear Criticality Safety Division

PAGE 1 AMERICAN NUCLEAR SOCIETY DIVISION FINANCIAL REPORT 4/30/2013

#### NUCLEAR CRITICALITY SAFETY DIV.

	BUDGET 12 MONTHS 2013	ACTUAL 4 MONTHS 2013	PAGE 2 REF.
REVENUES			
2013 MEMBER ALLOCATION DIVISION INCOME 2013 Committed funds (scholarship) TOTAL REVENUES	1,700 0 0 1,700	607 0 607	1
EXPENSES NEWSLETTERS		0	2
AWARDS, PLAQUES	1,100	0	3
NATIONAL MEETING COSTS	250	0	4
DIVISION OFFICER EXPENSE	0	0	5
STUDENT SUPPORT	4,450	4,450	6
SCHOLARSHIP/NEED FUNDING	3,000	0	7
OTHER EXPENSES	500	13	8
TOTAL EXPENSES	9,300	4,463	
NET SURPLUS/(DEFICIT)	(7,600)	(3,856)	
FUND BALANCE 1/1/13	25,019	25,019	
FUND BALANCE 4/30/13	17,419	21,163	



## Nuclear Criticality Safety Division

AMERICAN NUCLEAR SOCIETY DIVISION FINANCIAL REPORT 4/30/2013

### NUCLEAR CRITICALITY SAFETY DIV.

043100

1. DIVISION INCOME

		_
2. NEWSLETTERS		



0

0

0

0

3. AWARDS, PLAQUES

4. NATIONAL MEETING COSTS

5. DIVISION OFFICER EXPENSE

6. STUDENT SUPPORT	
SUPPORT STUDENT CONF '13 M.I.T.	700
STUDENT SUPPORT NCSD TOPICAL	2500
STUDENT TRAVEL NAT'L MTG	1250

7. SCHOLARSHIP/NEED FUNDING

8. OTHER EXPENSES	
JANUARY USPS POSTAGE	13



# Nuclear Criticality Safety Division

## **APPENDIX C – Information on Website**

	Avg	Мах
Hits per Hour	20	221
Hits per Day	480	717
Files per Day	252	467
Pages per Day	87	144
Visits per Day	53	81
KBytes per Day	132683	567910

Summary by Month										
M 4	Daily Avg				Monthly Totals					
Month	Hits	Files	Pages	Visits	Sites	KBytes	Visits	Pages	Files	Hits
May 2013	480	252	87	53	1450	4113170	1668	2715	7841	1489
Apr 2013	515	281	92	52	1440	4376067	1580	2788	8436	154
Mar 2013	525	287	98	55	1450	3519819	1718	3041	8905	163
Feb 2013	601	307	112	62	1353	3544988	1742	3148	8599	1684
Jan 2013	686	349	108	60	1653	4966482	1890	3364	10834	2128
Dec 2012	595	305	99	59	1468	2878049	1834	3091	9479	184
Nov 2012	730	396	100	56	1410	2598438	1681	3021	11895	219
Oct 2012	715	367	90	56	1421	2861902	1748	2810	11391	221
Sep 2012	642	352	88	51	1290	2548291	1552	2643	10580	192
Aug 2012	551	302	68	42	1242	1894949	1328	2137	9373	170
Jul 2012	704	384	81	47	1198	2115078	1479	2535	11917	218
<u>Jun 2012</u>	546	334	59	39	1084	1686442	1199	1798	10049	164
Totals						37103675	19419	33091	119299	2219



# Nuclear Criticality Safety Division

Top 20 of 28 Total Search Strings								
#	# Hits		Search String					
1	2	6.25%	larry wetzel sensitivity analysis					
2	2	6.25%	mentorship nuclear safety					
3	2	6.25%	mosteller nuclear					
4	2	6.25%	qi ao nuclear hitachi					
5	1	3.12%	423-735-5583					
6	1	3.12%	allyson d. miller retired					
7	1	3.12%	ans nuclear criticality safety training					
8	1	3.12%	avneet sood mcnp					
9	1	3.12%	benjamin baranko					
10	1	3.12%	criticality control in operations with fissile material pdf					
11	1	3.12%	criticality safety					
12	1	3.12%	david hayes los alamos					
13	1	3.12%	dr. jerry wu nuclear engineer					
14	1	3.12%	dunn lloyd aecl					
15	1	3.12%	john dunn aecl					
16	1	3.12%	kevin h reynolds y-12					
17	1	3.12%	megan nuclear safety associates					
18	1	3.12%	michael shea nuclear facility					
19	1	3.12%	michael shea nuclear facility in georgia					
20	1	3.12%	ncsd					
			View All Search Strings					



# Nuclear Criticality Safety Division

				Top 50 of 5	52 Total Coun	ntries		
#	]	Hits	Files		KBytes		Country	
1	6378	42.81%	3252	41.47%	1116819	27.15%	US Commercial	
2	2565	17.22%	1857	23.68%	1273536	30.96%	Unresolved/Unknown	
3	2303	17.22%	990	12.63%	1273530	2.73%	US Government	
4	1523	10.38 %	1085	13.84%	383580	9.33%	Network	
5	293	1.97%	248	3.16%	132661	3.23%	US Educational	
6	192	1.29%	90	1.15%	7905	0.19%	Sweden	
7	192	1.21%	147	1.87%	35214	0.86%	Germany	
8	100	0.95%	107	1.36%	77230	1.88%	Japan	
9	133	0.89%	107	0.19%	527213	12.82%	China	
10	119	0.80%	111	1.42%	23201	0.56%	Canada	
11	110	0.74%	84	1.07%	25715	0.63%	Non-Profit Organization	
12	103	0.69%	101	1.29%	13582	0.33%	Poland	
13	93	0.62%	74	0.94%	27479	0.67%	France	
14	77	0.52%	68	0.87%	24309	0.59%	Czech Republic	
15	70	0.47%	70	0.89%	125	0.00%	Moldova	
16	54	0.36%	52	0.66%	3109	0.08%	Switzerland	
17	52	0.35%	20	0.26%	22912	0.56%	Iran	
18	51	0.34%	33	0.42%	25319	0.62%	India	
19	42	0.28%	26	0.33%	25753	0.63%	Russian Federation	
20	26	0.17%	17	0.22%	17598	0.43%	United Kingdom	
21	25	0.17%	23	0.29%	4046	0.10%	Spain	
22	22	0.15%	19	0.24%	20160	0.49%	Australia	
23	22	0.15%	10	0.13%	1576	0.04%	Brazil	
24	19	0.13%	16	0.20%	9535	0.23%	Belgium	
25	13	0.09%	10	0.13%	17504	0.43%	Italy	
26	13	0.09%	13	0.17%	6733	0.16%	Slovak Republic	
27	12	0.08%	9	0.11%	8492	0.21%	Ukraine	
28	9	0.06%	7	0.09%	22037	0.54%	Kazakhstan	
29	8	0.05%	6	0.08%	8952	0.22%	Korea (South)	
30	8	0.05%	4	0.05%	19595	0.48%	Turkey	
31	7	0.05%	7	0.09%	2658	0.06%	Greece	
32	7	0.05%	4	0.05%	43724	1.06%	Indonesia	
33	7	0.05%	5	0.06%	25049	0.61%	Jordan	
34	7	0.05%	6	0.08%	1855	0.05%	South Africa	
35	6	0.04%	5	0.06%	25524	0.62%	US Military	
36	5	0.03%	0	0.00%	1	0.00%	Viet Nam	
37	4	0.03%	3	0.04%	253	0.01%	United Arab Emirates	



# Nuclear Criticality Safety Division

38	4	0.03%	3	0.04%	925	0.02%	Belarus
39	4	0.03%	3	0.04%	596	0.01%	Colombia
40	3	0.02%	2	0.03%	8758	0.21%	Argentina
41	3	0.02%	3	0.04%	866	0.02%	Netherlands
42	3	0.02%	2	0.03%	648	0.02%	Pakistan
43	3	0.02%	3	0.04%	584	0.01%	Romania
44	2	0.01%	1	0.01%	997	0.02%	Austria
45	2	0.01%	2	0.03%	234	0.01%	Niger
46	2	0.01%	2	0.03%	4480	0.11%	Portugal
47	1	0.01%	1	0.01%	0	0.00%	Chile
48	1	0.01%	1	0.01%	972	0.02%	Finland
49	1	0.01%	1	0.01%	416	0.01%	British Indian Ocean Territory
50	1	0.01%	1	0.01%	16	0.00%	Latvia