



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 30, 2014

Dr. Jinsuo Zhang, Ph.D
The Ohio State University
1960 Kenny Road
Franklin, OH-43210-1016

VIA Electronic Mail
zhang.3558@osu.edu

SUBJECT: GRANT NO. NRC-HQ-84-14-G-0001

Dear Dr. Zhang, Ph.D:

Pursuant to the authority contained in the Federal Grant and Cooperative Grantee Act of 1977 and the Atomic Energy Act of 1954, the Nuclear Regulatory Commission (NRC) hereby awards to the Ohio State University (hereinafter referred to as the "Grantee" or "Recipient"), the sum of \$198,227.00 to provide support to the Ohio State University "Nuclear Material II- High Temperature Material Corrosion and Failure Mechanisms" Program as described in Attachment B entitled "Program Description."

This award is effective as of the date of this letter and shall apply to expenditures made by the Grantee furtherance of program objectives during the period beginning with the effective date of September 30, 2014 and ending September 29, 2016.

This award is made to the Recipient on condition that the funds will be administered in accordance with the terms and conditions as set forth in Attachment A (the Schedule); Attachment B (the Program Description); and Attachment C (the Standard Provisions); all of which have been agreed to by your organization.

Please ensure individuals selected as beneficiaries of support under this grant meet the legal requirements consistent with recent Supreme Court Decisions including Fisher, Gratz, and Grutter.

Please sign the enclosed grant to acknowledge your receipt of the award, and return by e-mail as a pdf file to Fatima.Shuler@nrc.gov.

Sincerely yours,

Erika Eam

Erika Eam

Grants Officer
Resources & Grants
Acquisition Management Division

Attachments:
Attachment A – Schedule
Attachment B – Program Description
Attachment C – Standard Terms and Condition

Grant and Cooperative Agreement

CHOOSE ONE:

- COOPERATIVE AGREEMENT
- GRANT

CHOOSE ONE:

 EDUCATION FACILITIES RESEARCH SDCR TRAINING

1. GRANT/COOPERATIVE AGREEMENT NUMBER NRC-HQ-84-14-G-0001		2. SUPPLEMENT NUMBER		3. EFFECTIVE DATE 09/30/2014		4. COMPLETION DATE	
5. ISSUED TO NAME/ADDRESS OF RECIPIENT (No., Street, City/County, State, Zip) OHIO STATE UNIVERSITY OFFICE OF SPONSORED PROGRAMS, THE 1960 KENNY RD COLUMBUS OH 432101016				6. ISSUED BY U.S. NRC - HQ Mailing Address: Acquisition Management Division Mail Stop: 3WFN-05-C64MP Washington DC 20555-0001			
7. TAXPAYER IDENTIFICATION NO. (TIN)				9. PRINCIPAL INVESTIGATOR/ORGANIZATION'S PROJECT OR PROGRAM MGR. (Name & Phone) Jinsuo Zhang 614-292-5405; zhang.3558@osu.edu			
8. COMMERCIAL & GOVERNMENT ENTITY (CAGE) NO.							
10. RESEARCH, PROJECT OR PROGRAM TITLE Nuclear Materials II: High-Temperature Material Corrosion and Failure Mechanisms							
11. PURPOSE							
12. PERIOD OF PERFORMANCE (Approximately) 09/30/2014 through 09/29/2016							
13A. AWARD HISTORY		13B. FUNDING HISTORY					
PREVIOUS	\$0.00	PREVIOUS	\$0.00				
THIS ACTION	\$198,287.00	THIS ACTION	\$198,287.00				
CASH SHARE	\$198,287.00	TOTAL	\$198,287.00				
NON-CASH SHARE	\$0.00						
RECIPIENT SHARE	\$0.00						
TOTAL	\$198,287.00						
14. ACCOUNTING AND APPROPRIATION DATA 2014-X0200-FEEBASED-84-84D002-51-K-134-T8453-4110							
PURCHASE REQUEST NO.		JOB ORDER NO.		AMOUNT		STATUS	
OCHCO-14-0298							
15. POINTS OF CONTACT							
	NAME	MAIL STOP	TELEPHONE	E-MAIL ADDRESS			
TECHNICAL OFFICER	TANYA L. PARWANI-JAIMES		301-287-0730	Tanya.Parwani-Jaimes@nrc.gov			
NEGOTIATOR							
ADMINISTRATOR	FATIMA SHULER		301-287-3726	Fatima.Shuler@nrc.gov			
PAYMENTS							
16. THIS AWARD IS MADE UNDER THE AUTHORITY OF: Pursuant to Section 31b and 141b of the Atomic Energy Act of 1954, as amended							
17. APPLICABLE STATEMENT(S), IF CHECKED:				18. APPLICABLE ENCLOSURE(S), IF CHECKED:			
<input type="checkbox"/> NO CHANGE IS MADE TO EXISTING PROVISIONS				<input type="checkbox"/> PROVISIONS <input type="checkbox"/> SPECIAL CONDITIONS			
<input type="checkbox"/> FDP TERMS AND CONDITIONS AND THE AGENCY-SPECIFIC REQUIREMENTS APPLY TO THIS GRANT				<input type="checkbox"/> REQUIRED PUBLICATIONS AND REPORTS			
UNITED STATES OF AMERICA				COOPERATIVE AGREEMENT RECIPIENT			
CONTRACTING/GRANT OFFICER		DATE		AUTHORIZED REPRESENTATIVE		DATE	
ERIKA EAM <i>Erika Eam</i>		09/24/2014					

Grant and Cooperative Agreement

ITEM NO. (A)	ITEM OR SERVICE (Include Specifications and Special Instructions) (B)	QUANTITY (C)	UNIT (D)	ESTIMATED COST	
				UNIT PRICE (E)	AMOUNT (F)
	<p>CFDA Number: 77.006</p> <p>Payment will be made through the Automated Standard Application for Payment (ASAP.gov) unless the recipient has failed to comply with the program objectives, award conditions, Federal reporting requirements or other conditions specified in 2 CFR 215 (OMB Circular A110).</p> <p>Payment:</p> <p style="padding-left: 40px;">ASAP GRANT FUNDS REIMBURSEMENT SYS US TREASURY</p> <p>Period of Performance: 09/30/2014 to 09/29/2016</p>				

ATTACHMENT A - SCHEDULE

A.1 PURPOSE OF GRANT

The purpose of this Grant is to provide support to the "Nuclear Material II- High Temperature Material Corrosion and Failure Mechanisms" as described in Attachment B entitled "Program Description."

A.2 PERIOD OF GRANT

1. The effective date of this Grant is September 30, 2014. The estimated completion date of this Grant is September 29, 2016.

2. Funds obligated hereunder are available for program expenditures for the estimated period: September 30, 2014 – September 29, 2016.

A. GENERAL

1. Total Estimated NRC Amount:	\$198,287.00
2. Total Obligated Amount:	\$198,287.00
3. Cost-Sharing Amount:	\$0.00
4. Activity Title:	"Nuclear Material II- High Temperature Material Corrosion and Failure Mechanisms"
5. NRC Project Officer:	Tanya Parwani-Jaimes
6. DUNS No.:	832127323

A.3 BUDGET

Revisions to the budget shall be made in accordance with Revision of Grant Budget in accordance with 2 CFR 215.25.

	Year 1	Year 2
Personnel	\$49,958.00	\$52,587.00
Fringe	\$11,166.00	\$11,689.00
Travel	<u>\$ 1,658.00</u>	<u>\$ 1,700.00</u>
Total Direct Cost	\$62,782.00	\$65,976.00
Indirect Rate (54%)	<u>\$33,902.00</u>	<u>\$35,627.00</u>
Total	\$96,684.00	\$101,603.00

A.4 AMOUNT OF AWARD AND PAYMENT PROCEDURES

1. The total estimated amount of this Award is \$198,287.00 for a two year period.

2. NRC hereby obligates the amount of \$198,287.00 for program expenditures during the period set forth above and in support of the Budget above. The Grantee will be given written notice by the Grants Officer when additional funds will be added. NRC is not obligated to reimburse the Grantee for the expenditure of amounts in excess of the total obligated amount.

3. Payment shall be made to the Grantee in accordance with procedures set forth in the Automated Standard Application For Payments (ASAP) Procedures set forth below.

Attachment B – Program Description
C. Project description

1. Background

The Nuclear Engineering (NE) Program at The Ohio State University (OSU) is an academically free-standing Graduate Program in the Graduate School, and is administratively housed within the Mechanical and Aerospace Engineering Department. The main focus of the NE Program at OSU has historically been the education of students at the Master's and PhD level. In recent years, the NE Program has reorganized its course offerings so as to offer an Undergraduate Minor Degree in Nuclear Engineering.

The "nuclear renaissance" within the past few years, in combination with the aging workforce in the nuclear field and the resulting advertising to students, has led to an increased interest in the NE program. The major challenges that next-generation reactor design impose on materials, resulting from the pursuit of increased efficiency and possible hydrogen production capabilities through, among others, higher temperatures and novel coolants, has made it desirable to train the future nuclear workforce in the field of materials besides classical NE topics. In addition, this development has also attracted an increasing number of students from materials-focused programs to nuclear engineering courses, such as Materials Science and Engineering (MSE), Welding Engineering and students from the Fontana Corrosion Center, which is part of the MSE department.

This has led to the introduction of a course on Nuclear Materials and Their Degradation in Radiation Fields, cross-listed between NE and MSE, which was created on the basis of an NRC grant in 2008 by co-PI Dr. Windl (MSE) in collaboration with NE faculty. This course has proven successful and attracts by now a large number of students, with a maximum of 40 students in its 2011 offering, but can only cover a part of the materials issues in reactor environments due to time constraints. An important focus area not covered at present centers around high-temperature corrosion issues, which has been identified to be one of the key limitations of next-generation reactor designs. This is also an important gap in the training of a large number of ~40 students working in the Fontana Corrosion Center, which is headed by Dr. Gerald Frankel, who has been recently appointed by President Obama to the U.S. Nuclear Waste Technical Review Board. Therefore, we propose here to add a second course on Nuclear Materials with expanded focus, especially including high-temperature and flow-induced corrosion as well as related failure mechanisms such as stress-corrosion cracking, to increase the familiarity of the future nuclear workforce trained at OSU with those concepts and issues. This effort is aided by the recent successful recruitment of Dr. Jinsuo Zhang into the NE program at OSU, who came from Los Alamos National Laboratory and has a background in materials issues in nuclear environments, especially in the high-temperature corrosion field.

2. Ohio State University Nuclear Engineering Educational Infrastructure

The Ohio State University's main Columbus campus is one of America's largest and most comprehensive universities. More than 55,000 students select from 14 colleges, 175 undergraduate majors, and 240 masters, doctoral, and professional degree programs. The University is one of the nation's top-20 public universities.

The Ohio State University (OSU) Nuclear Engineering (NE) Program is a College of Engineering program administratively housed in the Department of Mechanical Engineering. The OSU NE Program offers an undergraduate minor, M.Sc. and Ph.D. graduate degrees, and a graduate minor degree in Radiation Protection. The core curriculum encompasses the traditional courses in the field, which include

- NE 5606 (*Radiation Protection and Shielding*)
- NE 5742 (*Nuclear Radiations and Their Measurements*)
- NE 6536 (*Nuclear Reactor Systems and Analysis*)
- NE 6708 (*Reactor Theory*)
- NE 6725 (*Nuclear Reactor Dynamics*)
- NE 6726 (*Reactor Dynamics Laboratory*)
- NE 6766 (*Nuclear Engineering Design*)

for M.Sc. students and additionally

- NE 6537 (*Nuclear Reactor Thermal Hydraulics*)
- NE 7865 (*Neutron Slowing Down and Thermalization*)

for Ph.D. students. M.Sc. (Ph.D.) students require additionally 1 (3) graduate-level NE courses from the available option program. Similarly, the MSE department requires that Ph.D. students take a minimum 9 credit hours at the 5000 level or above in MSE, and up to ~30 from courses in the STEM field at OSU. WE students have similar requirements. The proposed course will be part of the option program for NE, MSE, and WE.

3. Course Rationale

The proposed course entitled "Nuclear Materials II: High Temperature Materials Corrosion and Failure Mechanisms" will build upon and take advantage of our existing course "Nuclear Materials I: Nuclear Materials and their Degradation in Radiation Fields" which focuses on introducing the common materials used in current reactor technology, materials science concepts important for their selection and understanding, and the effects of irradiation on materials and their properties (such as radiation embrittlement and creep) including how they are modeled. The course ends with student projects, where appropriate materials are selected, irradiated in the Nuclear Reactor Lab at OSU, and then characterized and tested within the facilities of the Materials Science and Engineering (MSE) department. The development of "Nuclear Materials I" was initially supported by NRC through grants from 2007 to 2009, and has become the most popular elective course within MSE and Nuclear Engineering (NE), with enrollment of up to 40 students per offering. The course, which has been offered annually since 2008 (five times total) and is taught by co-PI Dr. Windl, attracts foremost students from MSE,

NE, and Welding Engineering (WE) with often comparable balance between the three different groups, allowing for innovative peer-teaching exercises. A large number of MSE students have found through it interest in the nuclear field, and a growing number of recent graduates have entered the nuclear workforce. Also, the number of MSE graduates taking introductory NE courses has been increased as a consequence. The course adds an important materials component to the education of NE students (who otherwise have no exposure to materials science and materials issues) and to WE students, who often end up working in nuclear facilities. However, due to time limitations, there are several essential topics that this course cannot cover (such as high-temperature corrosion, an in-depth treatment of stress-corrosion cracking, the effect of non-aqueous coolants, reprocessing issues, materials failure in nuclear environments and failure analysis, or non-destructive evaluation techniques), making a follow-up course highly desirable and important.

The proposed course will fill this void. It will focus on high temperature failure mechanisms and corrosion in applications of nuclear engineering, but some other applications, such as aerospace/gas turbine and pyro-chemical processing, will also be addressed. The course will include aspects of: fundamental theories of high temperature corrosion; stress corrosion cracking, including historic understanding of engineering failures by high temperature corrosion; introduction on high-corrosion-resistance materials and high corrosive environments; corrosion mechanisms in advanced nuclear coolants including liquid metals, molten salts and high temperature gases; corrosion inhibition, control and detection; and materials selection and material compatibility.

4. Goals and Teaching Methods

The course will be a permanent course at the graduate-level (but also open to senior undergraduates) for students from MAE, which includes the Nuclear Engineering Program (NEP) and MSE, which includes Welding Engineering as well as the Fontana Corrosion Center. The purpose of the proposed course is to provide students with information and skills necessary to work on science and engineering of materials and nuclear energy relevant to high temperature corrosion. The course will give the student insight into the fundamentals and applications of high temperature corrosion, corrosion inhibition, control and measurement, stress-corrosion cracking, the effect of non-aqueous coolants, reprocessing issues, materials failure in nuclear environments and failure analysis, and non-destructive evaluation techniques.

The course will provide students with opportunities to learn the basic science and engineering concepts of failure mechanisms and their prevention, including high temperature corrosion of materials and corrosion influence on the material properties including mechanical and chemical properties; materials selection for highly corrosive environments under irradiation and to understand the compatibilities between environments and structural materials; and to provide research tools/methods for their research topics and future employments in the area of material, mechanical and nuclear science and engineering.

The proposed course targets graduate and senior undergraduate students from MAE and MSE, including especially from NEP, Fontana Corrosion Center, and Welding Engineering. There are currently more than 30 graduate students studying in NEP, ~120 graduate students in MSE of which more than 40 graduate students studying in the corrosion center, and ~40 graduate students in Welding Engineering. Therefore, the number of the students we are planning to reach per offering will be in range of 15 to 35. This is a realistic expectation judging from the past enrollment in the current Nuclear Materials I course, especially considering that the topic will expand our target group through expected stronger interest from the students of the Fontana Corrosion Center.

The course will include a strong component of peer teaching and active-learning exercises, which we have found to work well in the existing Nuclear Materials I course, and which strongly benefits from the diverse background of the students. Instead of frontal lecturing, which is difficult since a part of the students often is more familiar with a certain topic than others, these students assume the role of peer teachers, which frequently forces them to rethink the concepts they have previously learned in order to explain it to their peers with different background. Also, peer teaching / discussion groups decrease barriers for students to ask about issues they do not understand. Exercises include answering conceptual questions about the course material, design problems (“Which material is better for a certain environment?”), quantitative problems, especially when different approaches are possible and would be chosen as part of the engineering cultures of the different disciplines, or presentation of focused topics to the rest of the class. Following the successful concept of a hands-on part at the end of the course in Nuclear Materials I (where students irradiate appropriate materials in the OSU Nuclear Reactor Lab and characterize and test them in the MSE facilities), we also plan to include a lab component with experiments representative of reactor-relevant high-temperature corrosion.

5. Course Outline and Description

3.1 Course prerequisites

B.S degree or senior status in material science and engineering, mechanical engineering, or in nuclear engineering; course of “Introduction to Material Science” and of “Nuclear Science and Engineering” for undergraduate students; course of “Nuclear Materials I” for graduate students. Undergraduate students, especially pursuing a Minor in Nuclear Engineering, are admitted on a by-case basis.

3.2 Course content

Chapter 1: General fundamentals

In this chapter, the fundamental theory of corrosion in general will be introduced. The different types of high temperature corrosion and their mechanisms will be discussed, and the differences to room temperature corrosion will be emphasized. The key factors such as environmental, metallurgical and technological factors that affect corrosion and corrosion rate will be introduced.

Chapter 2: Failure and failure analysis for materials in high-temperature environments

This chapter will include a review of historic plant failures by corrosion which is discussed along with an analysis of the challenges for materials in high temperature environments. The complex operation conditions of present and next-generation nuclear reactors will be reviewed, and the area of possible high temperature corrosion attacks will be discussed. We will also show the difficulties of studying of high temperature corrosion by experiment and modeling.

Chapter 3: Reactor Materials

This chapter will review the currently available materials with high corrosion resistance for high temperature applications, including both common and high performance materials, and expand on the list of nuclear materials and their properties discussed in the Nuclear Materials I course. This includes material types, material composition, physical properties (density, melting point, etc), thermal properties (thermal conductivity, expansion, specific heat, etc.) in addition to the mechanical properties (elastic, tensile, fatigue, fracture toughness, creep, etc.) and their radiation dependence that Nuclear Materials I focuses on. The general corrosion rate and oxidation rate of these materials will be also discussed.

Chapter 4: High temperature corrosive environments

High temperature corrosion occurs due to the interactions at high temperature between materials and corrosive environments including high temperature corrosive gases (oxygen, steam, air, CO₂, helium, etc), high temperature corrosive liquids (aqueous solutions at high pressure, subcritical carbon dioxide, liquid metal, or molten salt). This chapter will finally review the high temperature corrosive conditions (oxidizing, reducing, carburizing, di-carburizing, and nitridizing) that can be responsible for the corrosion attack.

Chapter 5: High temperature oxidation, nitridation, and carburization

Oxidation, nitridation and carburization are three important corrosion reactions when steels or alloys are heated to elevated temperatures in gaseous corrosive environments such as high temperature air. However, these corrosion types can also happen in high temperature liquids such as liquid subcritical carbon dioxide, high-temperature water, liquid metal with oxygen dissolved, etc. Oxidation, nitridation and carburization all lead to surface films. If the film is compact and protective, passivation occurs, and the further corrosion rate can be significantly reduced. However, if the growth of the film is fast and the structure of the film is loose, spallation may happen, which can result in severe corrosion. On the other hand, heavy oxidation, nitridation and carburization lead to material degradation. This chapter will introduce chemical reactions, thermodynamic considerations, layer growth kinetics and the layer spallation of the three corrosion reactions. This chapter will also introduce the interactions between oxidation, nitridation and carburization in environment where all three reactions occur.

Chapter 6: Hydrogen damage

Hydrogen damage is another important corrosion mechanism in high temperature environments. Hydrogen atoms, diffusing through steel, react with carbon (free or in carbide) to form methane, or recombine into hydrogen gas leading to cavity filling with methane or

hydrogen. Methane bubbles can reach very high pressures and lead to local failure. On the other hand, the formation of methane will decarburize the steel, change the distribution and size of the carbides in the steel, and thus change the steel properties. Another type of hydrogen attack is the formation of metal hydride in the steel. Hydrogen can also result in stress corrosion cracking, called hydrogen induced cracking (HIC) which will be addressed in chapter 10: stress corrosion cracking. This chapter will introduce the possible types of hydrogen attack including the chemical reactions and corrosion mechanisms, and their influence on the material properties. We will also introduce the hydrogen risk during severe accidents, and how to reduce the hydrogen risk by design and materials choice.

Chapter 7: Flow-induced High Temperature Corrosion

Flow-induced corrosion (FIC) is the most important corrosion mechanism in a nuclear reactor system. FIC cannot be avoided because the primary and secondary coolant loops of a nuclear reactor are both non-isothermal and flowing loops. This chapter will focus on inducing FIC by high temperature water, liquid metal, molten salt and gas. All the liquids considered are coolant candidates for advanced nuclear reactors that are designed to be operated at high temperatures. The compatibility between coolants and structural materials has been recognized to be one of the design limiting factors. This chapter will introduce the corrosion mechanisms and corrosion kinetics for FIC by the advanced nuclear coolants. This chapter will also introduce the factors that affect FIC such as the flow conditions, temperature profile and coolant properties. Considering that FIC strongly depends on mass transfer, this chapter will introduce the different types of mass transfer in both liquids and solids, including mass transfer kinetics and mass transfer types. The interactions between FIC and protective layer formation will also be discussed.

Chapter 8: Material Embrittlement

During material embrittlement by liquids, the liquid, such as liquid metal, will penetrate into the surface of the solid at high temperatures through existing defects. The penetration results in material redistribution which can change the material composition at the surface area. This includes a discussion of the special importance of this effect for the heat affected zone around welds, where material redistribution has already happened during the welding process and where the weld itself may have provided a large number of points of attack. This chapter will focus on material embrittlement by liquid metals such as liquid lead and lead-bismuth eutectic which has been found to be one of the main types of material degradation for liquid metal cooled nuclear reactors. The chapter will introduce the different types of penetration, penetration kinetics, material redistribution and chemical reactions. The chapter concludes with a discussion of the resulting effects on the mechanical properties of the solid.

Chapter 9: Radiation Induced Corrosion

Radiation damage and corrosion attack are the two main types of material degradation in nuclear reactor engineering. The evolution of the properties of cladding materials, which is due to microstructure changes and constituent losses by irradiation and corrosion, is one of the key factors that limit the lifetime and safety of a nuclear reactor system. Materials can be protected from corrosion using techniques that form a thin protective layer on the material surface. However, neutron irradiation can still damage the substrate as well as the protective layer, leading to layer failure and degradation of the cladding as shown in Figure 1. This chapter will review the radiation induced material defects introduced in the Nuclear Materials I course and then introduce their effect on material corrosion in the presence of flowing coolants at high temperature. The chapter will also discuss irradiation effects on mass transfer, specifically the formation of fast mass transfer paths by irradiation.

Chapter 10: Stress Corrosion Cracking (SCC)

Environment-induced high temperature SCC remains one of the primary causes of failures of current commercial LWRs and is likely to be the practical showstopper for advanced nuclear reactor systems whether the coolant is water, liquid metal or molten salt. Recent examples that led to reactor shut downs including SCC of vessel head penetrations in PWRs and core shrouds in BWRs. SCC includes all cracking that results from a combination of corrosive environments and straining of a the materials due to residual or applied stresses. This chapter will introduce the SCC mechanisms, the effects of environment and applied stresses, as well as SCC tests and control methods. Specific Historical failures of LWRs by SCC will also been reviewed in this chapter. We will also discuss SCC at welding.

Chapter 11: Corrosion Hazards, Inhibition, Control and Measurement

First, this chapter will introduce the different corrosion hazards, including corrosion equipment hazards, corrosion induced risk and its control, toxicity and safety, and hazard reduction, as well as evaluation methods of corrosion hazards. Second, corrosion inhibition and control by addition of corrosion inhibitors including organic and inorganic inhibitors will be discussed. Inhibition efficiency and mechanisms will also be covered. The discussion of control and measurement will include techniques such as on-line electrochemical methods, post-test couple analysis and nondestructive evaluation.

Chapter 12: Materials Selection

Materials selection in nuclear engineering must consider the material properties (chemical, physical, neutronic, etc.), safety (support passive safety or not), compatibility (corrosion, irradiation, chemical reactions, etc.), feasibility (experience, available data), and economics

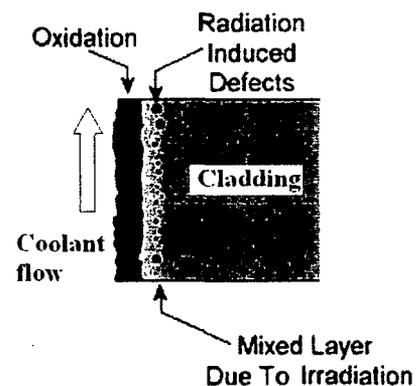


Figure 1 Surface behavior at coolant/cladding interface

(materials and fabrication prices). Materials selection also needs to follow a logical process of determining the most appropriate material for a given component applications and obtaining the data necessary to demonstrate that the material can be used successfully. This chapter will discuss the fundamentals of the materials selection process and the materials selection logical methods. Practical application of these methods will be demonstrated for the examples of molten salt and liquid metal cooled reactors, which are candidates for advanced reactor design and where the strongly different corrosion mechanisms require different sets of materials

6. Course Assessment Plan

Students enrolled in the proposed “Nuclear Materials II” course will learn the theory and mechanism of a variety of high temperature corrosion processes, methods and tools for studying high temperature corrosion, and high temperature corrosion problems in industry, especially in the nuclear power industry. The course will meet these teaching objectives by a combination of different teaching approaches, including active-learning exercises, peer teaching, reading assignments, lectures, and hands-on activities. The students will develop both team and individual work skills and capabilities of solving material corrosion problems they may meet during their university research as well as future employment.

Student performance will be evaluated based on a combination of outcomes from classroom discussion and presentation, midterm and final examinations, report of team work, and term papers. Course assessment will take place after each semester in which the course is taught (we are planning to teach the course annually). The assessment will be done quantitatively and qualitatively. Quantitatively, we will do a statistical analysis of the data of course end student feedback, grades awarded to students, and average amount of time spent by students in preparation for lessons. Combining those analyses with an evaluation of student understanding from reviewing answers to conceptual exam questions, we can perform a qualitative assessment of student learning and how the course supports the department and academic objectives. The course will be adjusted based on course assessment, advances in the relevant research topics, as well as changes in academic goals and curricula in the departments and programs involved.

7. Quantifiable Criteria

In addition to the development of the course material and the student assessment as the major quantifiable outcomes of this project, this proposal will also improve the educational infrastructure in MAE and MSE at the Ohio State University by: (1) improving the curriculum through creation of a new course on nuclear materials and high temperature corrosion appropriate for hands-on teaching exercises, and (2) by helping the construction of a high-temperature corrosion laboratory. The PI of this project, Dr. Jinsuo Zhang, is a new faculty member of MAE’s Nuclear Engineering Program. Dr. Zhang’s research plan is to study high-temperature corrosion, which requires the construction of a high temperature corrosion laboratory, where establishing facilities that allow practical teaching exercises is one of the priorities. Establishing high temperature corrosion research and teaching capabilities will also

complement the current research and course offerings provided by the Fontana Corrosion Center, which is focusing on room temperature corrosion, and of the nuclear engineering program, which currently does not have a nuclear materials research laboratory.

Prof. Zhang has studied high temperature materials corrosion for nuclear engineering applications for more than 10 years. Prof. Windl has long been committed to teaching the course of "Nuclear Materials I" focusing on irradiation damage and fundamental material science. Both of them have been actively involved in nuclear materials research as demonstrated by their CVs and current and pending funding. The proposed project will allow the PIs to leverage that expertise to further develop an associated teaching program by expanding the current course offering on nuclear materials.

The two PIs will form a highly complementary team that should optimize the outcome of the proposed project. Dr. Windl will strongly profit from Dr. Zhang's expertise in high-temperature corrosion, while Dr. Windl's teaching experience, especially with the existing Nuclear Materials course, will be beneficial to Dr. Zhang. This will ensure development of a quality course that will provide the students with expert technical knowledge delivered in the form of modern and proven teaching approaches.

Attachment C – Standard Terms and Conditions

The Nuclear Regulatory Commission's Standard Terms and Conditions for U.S. Nongovernmental Grantees Preface

This award is based on the application submitted to, and as approved by, the Nuclear Regulatory Commission (NRC) under the authorization 42 USC 2051(b) pursuant to section 31b and 141b of the Atomic Energy Act of 1954, as amended, and is subject to the terms and conditions incorporated either directly or by reference in the following:

- Grant program legislation and program regulation cited in this Notice of Grant Award.
- Restrictions on the expenditure of Federal funds in appropriation acts, to the extent those restrictions are pertinent to the award.
- Code of Federal Regulations/Regulatory Requirements - 2 CFR 215 Uniform Administrative Requirements For Grants And Agreements With Institutions Of Higher Education, Hospitals, And Other Non-Profit Organizations (OMB Circulars), as applicable.

To assist with finding additional guidance for selected items of cost as required in 2 CFR 220, 2 CFR 225, and 2 CFR 230 this URL to the Office of Management and Budget Cost Circulars is included for reference: http://www.whitehouse.gov/omb/circulars_index-ffm.

Any inconsistency or conflict in terms and conditions specified in the award will be resolved according to the following order of precedence: public laws, regulations, applicable notices published in the Federal Register, Executive Orders (EOs), Office of Management and Budget (OMB) Circulars, the Nuclear Regulatory Commission's (NRC) Mandatory Standard Provisions, special award conditions, and standard award conditions.

Certifications and Representations: These terms incorporate the certifications and representations required by statute, executive order, or regulation that were submitted with the SF424B application through Grants.gov.

I. Mandatory General Requirements

The order of these requirements does not make one requirement more important than any other requirement.

1. Applicability of 2 CFR Part 215

All provisions of 2 CFR Part 215 and all Standard Provisions attached to this grant/cooperative agreement are applicable to the Grantee and to sub-recipients which meet the definition of "Grantee" in Part 215, unless a section specifically excludes a sub-recipient from coverage. The Grantee and any sub-recipients must, in addition to the assurances made as part of the application, comply and require each of its sub-awardees employed in the completion of the project to comply with Subpart C of 2 CFR 215 and include this term in lower-tier (subaward) covered transactions.

Grantees must comply with monitoring procedures and audit requirements in accordance with OMB Circular A-133.

2. Award Package

§ 215.41 Grantee responsibilities.

The Grantee is obligated to conduct project oversight as may be appropriate, to manage the funds with prudence, and to comply with the provisions outlined in 2 CFR 215.41. Within this framework, the Principal Investigator (PI) named on the award face page, Block 11, is responsible for the scientific or technical direction of the project and for preparation of the project performance reports. This award is funded on a cost reimbursement basis not to exceed the amount awarded as indicated on the face page, Block 16, and is subject to a refund of unexpended funds to NRC.

The standards contained in this section do not relieve the Grantee of the contractual responsibilities arising under its contract(s). The Grantee is the responsible authority, without recourse to the NRC, regarding the settlement and satisfaction of all contractual and administrative issues arising out of procurements entered into in support of an award or other agreement. This includes disputes, claims, protests of award, source evaluation or other matters of a contractual nature. Matters concerning violation of statute are to be referred to such Federal, State or local authority as may have proper jurisdiction.

Subgrants

Appendix A to Part 215—Contract Provisions

Sub-recipients, sub-awardees, and contractors have no relationship with NRC under the terms of this grant/cooperative agreement. All required NRC approvals must be directed through the Grantee to NRC. See 2 CFR 215 and 215.41.

Nondiscrimination

This provision is applicable when work under the grant/cooperative agreement is performed in the U.S. or when employees are recruited in the U.S.

The Grantee agrees to comply with the non-discrimination requirements below:

- Title VI of the Civil Rights Act of 1964 (42 USC §§ 2000d et seq)
- Title IX of the Education Amendments of 1972 (20 USC §§ 1681 et seq)
- Section 504 of the Rehabilitation Act of 1973, as amended (29 USC § 794)
- The Age Discrimination Act of 1975, as amended (42 USC §§ 6101 et seq)
- The Americans with Disabilities Act of 1990 (42 USC §§ 12101 et seq)
- Parts II and III of EO 11246 as amended by EO 11375 and 12086.
- EO 13166, "Improving Access to Services for Persons with Limited English Proficiency."
- Any other applicable non-discrimination law(s).

Generally, Title VI of the Civil Rights Act of 1964, 42 USC § 2000e et seq, provides that it shall be an unlawful employment practice for an employer to discharge any individual or otherwise to discriminate against an individual with respect to compensation, terms, conditions, or privileges of employment because of such individual's race, color, religion, sex, or national origin. However, Title VI, 42 USC § 2000e-1(a), expressly exempts from the prohibition against discrimination on the basis of religion, a religious corporation, association, educational institution, or society with respect to the employment of individuals of a particular religion to perform work connected with the carrying on by such corporation, association, educational institution, or society of its activities.

Modifications/Prior Approval

NRC's prior written approval may be required before a Grantee makes certain budget modifications or undertakes particular activities. If NRC approval is required for changes in the grant or cooperative agreement, it must be requested and obtained from the NRC Grants Officer in advance of the change or obligation of funds. All requests for NRC prior approval, including requests for extensions to the period of performance, should be made, in writing (which includes submission by e-mail), to the designated Grants Specialist and Program Office 30 days before the proposed change. The request should be signed by the authorized organizational official. Failure to obtain prior approval, when required, from the NRC Grants Officer, may result in the disallowance of costs, or other enforcement action within NRC's authority.

Lobbying Restrictions

The Grantee will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

The Grantee will comply with provisions of 31 USC § 1352. This provision generally prohibits the use of Federal funds for lobbying in the Executive or Legislative Branches of the Federal Government in connection with the award, and requires disclosure of the use of non-Federal funds for lobbying.

The Grantee receiving in excess of \$100,000.00 in Federal funding shall submit a completed Standard Form (SF) LLL, "Disclosure of Lobbying Activities," regarding the use of non-Federal funds for lobbying within 30 days following the end of the calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed. The Grantee must submit the SF-LLL, including those received from sub-recipients, contractors, and subcontractors, to the Grants Officer.

§ 215.13 Debarment And Suspension.

The Grantee agrees to notify the Grants Officer immediately upon learning that it or any of its principals:

- (1) Are presently excluded or disqualified from covered transactions by any Federal department or agency;
- (2) Have been convicted within the preceding three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, receiving stolen property, making false claims, or obstruction of justice; commission of any other offense indicating a lack of business integrity or business honesty that seriously and directly affects your present responsibility;
- (3) Are presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b); and

(4) Have had one or more public transactions (Federal, State, or local) terminated for cause or default within the preceding three years.

b. The Grantee agrees that, unless authorized by the Grants Officer, it will not knowingly enter into any subgrant or contracts under this grant/cooperative agreement with a person or entity that is included on the System Award Management (<http://epls.arnet.gov>).

The Grantee further agrees to include the following provision in any subgrant or contracts entered into under this award:

'Debarment, Suspension, Ineligibility, and Voluntary Exclusion

The Grantee certifies that neither it nor its principals is presently excluded or disqualified from participation in this transaction by any Federal department or agency. The policies and procedures applicable to debarment, suspension, and ineligibility under NRC-financed transactions are set forth in 2 CFR Part 180.'

Drug-Free Workplace

The Grantee must be in compliance with The Federal Drug Free Workplace Act of 1988. The policies and procedures applicable to violations of these requirements are set forth in 41 USC 702.

Implementation of E.O. 13224 -- Executive Order On Terrorist Financing

The Grantee is reminded that U.S. Executive Orders and U.S. law prohibits transactions with, and the provision of resources and support to, individuals and organizations associated with terrorism. It is the legal responsibility of the Grantee to ensure compliance with these Executive Orders and laws. This provision must be included in all contracts/sub-awards issued under this grant/cooperative agreement.

The Grantee must comply with Executive Order 13224, Blocking Property and Prohibiting Transactions with Persons who Commit, Threaten to Commit, or Support Terrorism. Information about this Executive Order can be found at: www.fas.org/irp/offdocs/eo/eo-13224.htm.

Procurement Standards § 215.40-48

Sections 215.41 through 215.48 set forth standards for use by Grantees in establishing procedures for the procurement of supplies and other expendable property, equipment, real property and other services with Federal funds. These standards are furnished to ensure that such materials and services are obtained in an effective manner and in compliance with the provisions of applicable Federal statutes and executive orders. No additional procurement standards or requirements will be imposed by the Federal awarding agencies upon Grantees, unless specifically required by Federal statute or executive order or approved by OMB.

Travel

Travel must be in accordance with the Grantee's Travel Regulations or the US Government Travel Policy and Regulations at: www.gsa.gov/federaltravelregulation and the per diem rates set forth at: www.gsa.gov/perdiem, absent Grantee's travel regulations. Travel costs for the grant must be consistent with provisions as established in Appendix A to 2 CFR 220 (J.53). All other travel, domestic or international, must not increase the total estimated award amount.

Domestic Travel:

Domestic travel is an appropriate charge to this award and prior authorization for specific trips are not required, if the trip is identified in the Grantee's approved program description and approved budget. Domestic trips not stated in the approved budget require the written prior approval of the Grants Officer, and must not increase the total estimated award amount.

All common carrier travel reimbursable hereunder shall be via the least expensive class rates consistent with achieving the objective of the travel and in accordance with the Grantee's policies and practices. Travel by first-class travel is not authorized unless prior approval is obtained from the Grants Officer.

International Travel:

International travel requires **PRIOR** written approval by the Project Officer and the Grants Officer, even if the international travel is stated in the approved program description and the approved budget.

The Grantee will comply with the provisions of the Fly American Act (49 USC 40118) as implemented through 41 CFR 301-10.131 through 301-10.143.

Property and Equipment Management Standards

Property and equipment standards of this award shall follow provisions as established in 2 CFR 215.30-37.

Intangible and Intellectual Property

Intangible and intellectual property of this award shall generally follow provisions established in 2 CFR 215.36.

Inventions Report - The Bayh-Dole Act (P.L. 96-517) affords Grantees the right to elect and retain title to inventions they develop with funding under an NRC grant award ("subject inventions"). In accepting an award, the Grantee agrees to comply with applicable NRC policies, the Bayh-Dole Act, and its Government-wide implementing regulations found at Title 37, Code of Federal Regulations (CFR) Part 401. A significant part of the regulations require that the Grantee report all subject inventions to the awarding agency (NRC) as well as include an acknowledgement of federal support in any patents.

Patent Notification Procedures - If the NRC or its Grantees, without making a patent search, knows (or has demonstrable reasonable grounds to know) that technology covered by a valid United States patent has been or will be used without a license from the owner, EO 12889 requires NRC to notify the owner. If the Grantee uses or has used patented technology under this award without license or permission from the owner, the Grantee must notify the Grants Officer. This notice does not mean that the Government authorizes and consents to any copyright or patent infringement occurring under the financial assistance.

Data, Databases, and Software - The rights to any work produced or purchased under a NRC federal financial assistance award, such as data, databases or software are determined by 2 CFR 215.36. The Grantee owns any work produced or purchased under a NRC federal financial assistance award subject to NRC's right to obtain,

reproduce, publish or otherwise use the work or authorize others to receive, reproduce, publish or otherwise use the data for Government purposes.

Copyright - The Grantee may copyright any work produced under a NRC federal financial assistance award subject to NRC's royalty-free nonexclusive and irrevocable right to reproduce, publish or otherwise use the work or authorize others to do so for Government purposes. Works jointly authored by NRC and Grantee employees may be copyrighted but only the part authored by the Grantee is protected because, under 17 USC § 105, works produced by Government employees are not copyrightable in the United States. On occasion, NRC may ask the Grantee to transfer to NRC its copyright in a particular work when NRC is undertaking the primary dissemination of the work. Ownership of copyright by the Government through assignment is permitted under 17 USC § 105.

Records Retention and Access Requirements

Grantee shall follow established provisions in 2 CFR 215.53.

Conflict Of Interest Standards

Conflict of Interest Standards for this award will follow OCOI requirements set forth in Section 170A of the Atomic Energy Act of 1954, as amended, and provisions set forth at 2 CFR 215.42 Codes of Conduct.

Dispute Review Procedures

- a. Any request for review of a notice of termination or other adverse decision should be addressed to the Grants Officer. It must be postmarked or transmitted electronically no later than 30 days after the postmarked date of such termination or adverse decision from the Grants Officer.
- b. The request for review must contain a full statement of the Grantee's position and the pertinent facts and reasons in support of such position.
- c. The Grants Officer will promptly acknowledge receipt of the request for review and shall forward it to the Director, Office of Administration, who shall appoint an intra-agency Appeal Board to review a grantee appeal of an agency action, if required, which will consist of the program office director, the Deputy Director of Office of Administration, and the Office of General Counsel.
- d. Pending resolution of the request for review, the NRC may withhold or defer payments under the award during the review proceedings.
- e. The review committee will request the Grants Officer who issued the notice of termination or adverse action to provide copies of all relevant background materials and documents. The committee may, at its discretion, invite representatives of the Grantee and the NRC program office to discuss pertinent issues and to submit such additional information as it deems appropriate. The chairman of the review committee will insure that all review activities or proceedings are adequately documented.
- f. Based on its review, the committee will prepare its recommendation to the Director, Office of Administration, who will advise the parties concerned of his/her decision.

Termination and Enforcement

Termination of this award will follow provisions as established in 2 CFR 215.60-62.

Monitoring and Reporting § 215.50-53

Grantee Financial Management systems must comply with the provisions in 2 CFR 215.21

- Payment – 2 CFR 215.22
- Cost Share – 2 CFR 215.23
- Program Income – 2 CFR 215.24
 - Earned program income, if any, will be added to funds committed to the project by the NRC and Grantee and used to further eligible project or program objectives or deducted from the total project cost allowable cost as directed by the Grants Officer or the terms and conditions of award.
- Budget Revision – 2 CFR 215.25
 - The Grantee is required to report deviations from the approved budget and program descriptions in accordance with 2 CFR 215.25 and request prior written approval from the Program Officer and the Grants Officer.
 - The Grantee is not authorized to rebudget between direct costs and indirect costs without written approval of the Grants Officer.
 - The Grantee is authorized to transfer funds among direct cost categories up to a cumulative 10 percent of the total approved budget. The Grantee is not allowed to transfer funds if the transfer would cause any Federal appropriation to be used for purposes other than those consistent with the original intent of the appropriation.
 - Allowable Costs – 2 CFR 215.27

Federal Financial Reports - The Grantee is required to submit a "Federal Financial Report" (SF-425) on a semi-annual basis for the periods ending March 31, and September 30, or any portion thereof, unless otherwise specified in a special award condition. Reports are due no later than 30 days following the end of each reporting period. A final SF-425 is due within 90 days after expiration of the award. The report should be submitted electronically to: Grants_FFR.Resource@NRC.GOV. **(NOTE: There is an underscore between Grants and FFR).**

Period of Availability of Funds 2 CFR § 215.28

If a funding period is specified, a Grantee may charge to the grant only allowable costs resulting from obligations incurred during the funding period and any pre-award costs authorized by the NRC.

Unless otherwise authorized in 2 CFR 215.25(e)(2) or a special award condition, any extension of the award period can only be authorized by the Grants Officer in writing. Verbal or written assurances of funding from other than the Grants Officer shall not constitute authority to obligate funds for programmatic activities beyond the expiration date.

The NRC has no obligation to provide any additional prospective or incremental funding. Any modification of the award to increase funding and to extend the period of performance is at the sole discretion of the NRC.

Automated Standard Application For Payments (ASAP) Procedures

Unless otherwise stated, grantee payments are made using the Department of Treasury's Automated Standard Application for Payment (ASAP) system <http://www.fms.treas.gov/asap/index.html>, through preauthorized electronic funds transfers. To receive payments, Grantees are required to enroll with the Department of Treasury, Financial Management Service, and Regional Financial Centers, which allows them to use the on-line method of withdrawing funds from their ASAP established accounts. The following information is required to make ASAP withdrawals: (1) ASAP account number – the award number found on the cover sheet of the award; (2) Agency Location Code (ALC) – 31000001; and Region Code. Grantees enrolled in the ASAP system do not need to submit a "Request for Advance or Reimbursement" (SF-270).

II. Audit Requirements

Audits

Organization-wide or program-specific audits are performed in accordance with the Single Audit Act Amendments of 1996, as implemented by OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations." Grantees are subject to the provisions of OMB Circular A-133 if they expend \$500,000.00 or more in a year in Federal awards.

The Form SF-SAC and the Single Audit Reporting packages for fiscal periods ending on or after January 1, 2008 are submitted online.

1. Create your online report ID at <http://harvester.census.gov/fac/collect/ddeindex.html>
2. Complete the Form SF-SAC
3. Upload the Single Audit
4. Certify the Submission
5. Click "Submit."

Organizations expending less than \$500,000.00 a year are not required to have an annual audit for that year but must make their grant-related records available to NRC or other designated officials for review or audit.

III. Programmatic Requirements

Performance (Technical) Reports

The Grantee will submit performance (technical) reports electronically to the NRC Project Officer and Grants Officer on a semi-annual basis unless otherwise authorized by the Grants Officer. Performance reports are sent to the Program Officer at the email address indicated in Block 12 of the Notice of Award, and to Grants Officer at: Grants_PPR.Resource@NRC.GOV. **(NOTE: There is an underscore between Grants and PPR).**

The Office of Human Resources requires the submission of the semi-annual progress report on the SF-PPR, SF-PPR-B, and the SF-PPR-E forms. The submission for the six month period ending March 31st is due by April 30th or any portion thereof. The submission for the six month period ending September 30th is due by October 31st or any portion thereof.

Grant Performance Metrics

The Office of Management and Budget requires all Federal Agencies providing funding for educational scholarships and fellowships as well as other educational related funding to report on specific metrics. These metrics are part of the Academic Competitiveness Council's (ACC)

2007 report and specifically relates to Science, Technology, Engineering, and Mathematics (STEM) curricula.

The performance (technical) reports will contain brief information as prescribed in the applicable uniform administrative requirements 2 CFR §215.51. In addition to the customary performance progress report requested on the SF-PPR, SF-PPR-B, and SF-PPR-E forms, HR requires the following metrics to be reported on by the awardees as follows:

Curriculum Development Awards

1. Overall number of new courses developed in NRC designated STEM areas (including the names of the courses);
2. Number of students enrolled in new STEM courses;
3. Number of these enrolled students retained in STEM major.

Unsatisfactory Performance

Failure to perform the work in accordance with the terms of the award and maintain at least a satisfactory performance rating, may result in designation of the Grantee as high risk and the assignment of special award conditions. Further action may be required as specified in the standard term and condition entitled "Termination."

Failure to comply with the award provisions may result in a negative impact on future NRC funding. In addition, the Grants Officer may withhold payments; change the method of payment from advance to reimbursement; impose special award conditions; suspend or terminate the grant.

Other Federal Awards With Similar Programmatic Activities

The Grantee will immediately notify the Project Officer and the Grants Officer in writing if after award, other financial assistance is received to support or fund any portion of the program description stated in the NRC award. NRC will not pay for costs that are funded by other sources.

Prohibition Against Assignment By The Grantee

The Grantee will not transfer, pledge, mortgage, or otherwise assign the award, or any interest to the award, or any claim arising under the award, to any party, banks, trust companies, or other financing or financial institutions without the written approval of the Grants Officer.

Site Visits

The NRC, through authorized representatives, has the right to make site visits to review project accomplishments and management control systems and to provide technical assistance as required. If any site visit is made by the NRC on the premises of the Grantee or contractor under an award, the Grantee shall provide and shall require his/her contractors to provide all reasonable facilities and assistance for the safety and convenience of the Government representative in the performance of their duties.

IV. Miscellaneous Requirements

Criminal and Prohibited Activities

The Program Fraud Civil Remedies Act (31 USC §§ 3801-3812), provides for the imposition of civil penalties against persons who make false, fictitious, or fraudulent claims to the Federal

government for money (including money representing grant/cooperative agreements, loans, or other benefits.)

False statements (18 USC § 287), provides that whoever makes or presents any false, fictitious, or fraudulent statements, representations, or claims against the United States shall be subject to imprisonment of not more than five years and shall be subject to a fine in the amount provided by 18 USC § 287.

False Claims Act (31 USC 3729 et seq), provides that suits under this Act can be brought by the government, or a person on behalf of the government, for false claims under federal assistance programs.

Copeland "Anti-Kickback" Act (18 USC § 874), prohibits a person or organization engaged in a federally supported project from enticing an employee working on the project from giving up a part of his compensation under an employment contract.

American-Made Equipment And Products

Grantees are encouraged to purchase American-made equipment and products with funding provided under this award.

Increasing Seat Belt Use in the United States

EO 13043 requires Grantees to encourage employees and contractors to enforce on-the-job seat belt policies and programs when operating company-owned, rented or personally-owned vehicle.

Federal Leadership of Reducing Text Messaging While Driving

EO 13513 requires Grantees to encourage employees, sub-awardees, and contractors to adopt and enforce policies that ban text messaging while driving company-owned, rented vehicles or privately owned vehicles when on official Government business or when performing any work for or on behalf of the Federal Government.

Federal Employee Expenses

Federal agencies are barred from accepting funds from a Grantee to pay transportation, travel, or other expenses for any Federal employee unless specifically approved in the terms of the award. Use of award funds (Federal or non-Federal) or the Grantee's provision of in-kind goods or services, for the purposes of transportation, travel, or any other expenses for any Federal employee may raise appropriation augmentation issues. In addition, NRC policy prohibits the acceptance of gifts, including travel payments for Federal employees, from Grantees or applicants regardless of the source.

Minority Serving Institutions (MSIs) Initiative

Pursuant to EOs 13256, 13230, and 13270, NRC is strongly committed to broadening the participation of MSIs in its financial assistance program. NRC's goals include achieving full participation of MSIs in order to advance the development of human potential, strengthen the Nation's capacity to provide high-quality education, and increase opportunities for MSIs to participate in and benefit from Federal financial assistance programs. NRC encourages all applicants and Grantees to include meaningful participations of MSIs. Institutions eligible to be considered MSIs are listed on the Department of Education website:

<http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>

Research Misconduct

Scientific or research misconduct refers to the fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. It does not include honest errors or differences of opinions. The Grantee organization has the primary responsibility to investigate allegations and provide reports to the Federal Government. Funds expended on an activity that is determined to be invalid or unreliable because of scientific misconduct may result in a disallowance of costs for which the institution may be liable for repayment to the awarding agency. The Office of Science and Technology Policy at the White House published in the Federal Register on December 6, 2000, a final policy that addressed research misconduct. The policy was developed by the National Science and Technology Council (65 FR 76260). The NRC requires that any allegation be submitted to the Grants Officer, who will also notify the OIG of such allegation. Generally, the Grantee organization shall investigate the allegation and submit its findings to the Grants Officer. The NRC may accept the Grantee's findings or proceed with its own investigation. The Grants Officer shall inform the Grantee of the NRC's final determination.

Publications, Videos, and Acknowledgment of Sponsorship

Publication of the results or findings of a research project in appropriate professional journals and production of video or other media is encouraged as an important method of recording and reporting scientific information. It is also a constructive means to expand access to federally funded research. The Grantee is required to submit a copy to the NRC and when releasing information related to a funded project include a statement that the project or effort undertaken was or is sponsored by the NRC. The Grantee is also responsible for assuring that every publication of material (including Internet sites and videos) based on or developed under an award, except scientific articles or papers appearing in scientific, technical or professional journals, contains the following disclaimer:

"This [report/video] was prepared by [Grantee name] under award [number] from [name of operating unit], Nuclear Regulatory Commission. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the view of the [name of operating unit] or the US Nuclear Regulatory Commission."

Trafficking In Victims Protection Act Of 2000 (as amended by the Trafficking Victims Protection Reauthorization Act of 2003)

Section 106(g) of the Trafficking In Victims Protection Act Of 2000 (as amended as amended, directs on a government-wide basis that:

"any grant, contract, or cooperative agreement provided or entered into by a Federal department or agency under which funds are to be provided to a private entity, in whole or in part, shall include a condition that authorizes the department or agency to terminate the grant, contract, or cooperative agreement, without penalty, if the grantee or any subgrantee, or the contractor or any subcontractor (i) engages in severe forms of trafficking in persons or has procured a commercial sex act during the period of time that the grant, contract, or cooperative agreement is in effect, or (ii) uses forced labor in the performance of the grant, contract, or cooperative agreement." (22 U.S.C. § 7104(g)).

EXECUTIVE COMPENSATION REPORTING

2 CFR 170.220 directs agencies to include the following text to each grant award to a non-federal entity if the total funding is \$25,000 or more in Federal funding.

Reporting Subawards and Executive Compensation.

a. *Reporting of first-tier subawards.*

1. *Applicability.* Unless you are exempt as provided in paragraph d. of this award term, you must report each action that obligates \$25,000.00 or more in Federal funds that does not include Recovery funds (as defined in section 1512(a)(2) of the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5) for a subaward to an entity (see definitions in paragraph e. of this award term).

2. *Where and when to report.*

i. You must report each obligating action described in paragraph a.1. of this award term to <http://www.fsrs.gov>.

ii. For subaward information, report no later than the end of the month following the month in which the obligation was made. (For example, if the obligation was made on November 7, 2010, the obligation must be reported by no later than December 31, 2010.)

3. *What to report.* You must report the information about each obligating action that the submission instructions posted at <http://www.fsrs.gov> specify.

b. *Reporting Total Compensation of Recipient Executives.*

1. *Applicability and what to report.* You must report total compensation for each of your five most highly compensated executives for the preceding completed fiscal year, if—

i. the total Federal funding authorized to date under this award is \$25,000.00 or more;

ii. in the preceding fiscal year, you received—

(A) 80 percent or more of your annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(B) \$25,000,000 or more in annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

iii. The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>.)

2. *Where and when to report.* You must report executive total compensation described in paragraph b.1. of this award term:

i. As part of your registration profile at <http://www.sam.gov>.

ii. By the end of the month following the month in which this award is made, and annually thereafter.

c. Reporting of Total Compensation of Subrecipient Executives.

1. *Applicability and what to report.* Unless you are exempt as provided in paragraph d. of this award term, for each first-tier subrecipient under this award, you shall report the names and total compensation of each of the subrecipient's five most highly compensated executives for the subrecipient's preceding completed fiscal year, if—

i. in the subrecipient's preceding fiscal year, the subrecipient received—

(A) 80 percent or more of its annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(B) \$25,000,000 or more in annual gross revenues from Federal procurement contracts (and subcontracts), and Federal financial assistance subject to the Transparency Act (and subawards); and

ii. The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>.)

2. *Where and when to report.* You must report subrecipient executive total compensation described in paragraph c.1. of this award term:

i. To the recipient.

ii. By the end of the month following the month during which you make the subaward. For example, if a subaward is obligated on any date during the month of October of a given year (*i.e.*, between October 1 and 31), you must report any required compensation information of the subrecipient by November 30 of that year.

d. Exemptions

If, in the previous tax year, you had gross income, from all sources, under \$300,000.00, you are exempt from the requirements to report:

i. Subawards,

and

ii. The total compensation of the five most highly compensated executives of any subrecipient.

e. Definitions. For purposes of this award term:

1. *Entity* means all of the following, as defined in 2 CFR part 25:

- i. A Governmental organization, which is a State, local government, or Indian tribe;
- ii. A foreign public entity;
- iii. A domestic or foreign nonprofit organization;
- iv. A domestic or foreign for-profit organization;
- v. A Federal agency, but only as a subrecipient under an award or subaward to a non-Federal entity.

2. *Executive* means officers, managing partners, or any other employees in management positions.

3. *Subaward*:

- i. This term means a legal instrument to provide support for the performance of any portion of the substantive project or program for which you received this award and that you as the recipient award to an eligible subrecipient.
- ii. The term does not include your procurement of property and services needed to carry out the project or program (for further explanation, see Sec. __.210 of the attachment to OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations").
- iii. A subaward may be provided through any legal agreement, including an agreement that you or a subrecipient considers a contract.

4. *Subrecipient* means an entity that:

- i. Receives a subaward from you (the recipient) under this award; and
- ii. Is accountable to you for the use of the Federal funds provided by the subaward.

5. *Total compensation* means the cash and noncash dollar value earned by the executive during the recipient's or subrecipient's preceding fiscal year and includes the following (for more information see 17 CFR 229.402(c)(2)):

i. *Salary and bonus*.

ii. *Awards of stock, stock options, and stock appreciation rights*. Use the dollar amount recognized for financial statement reporting purposes with respect to the fiscal year in accordance with the Statement of Financial Accounting Standards No. 123 (Revised 2004) (FAS 123R), Shared Based Payments.

iii. *Earnings for services under non-equity incentive plans*. This does not include group life, health, hospitalization or medical reimbursement plans that do not discriminate in favor of executives, and are available generally to all salaried employees.

iv. *Change in pension value.* This is the change in present value of defined benefit and actuarial pension plans.

v. *Above-market earnings on deferred compensation which is not tax-qualified.*

vi. Other compensation, if the aggregate value of all such other compensation (e.g. severance, termination payments, value of life insurance paid on behalf of the employee, perquisites or property) for the executive exceeds \$10,000.00.



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FedConnect® can help you do both. FedConnect is a one stop location where you can find opportunities for federal contracts, grants, and other types of assistance funding.

FedConnect is a web portal that bridges the gap between government agencies and their vendor and grants applicant/recipient communities to streamline the process of doing business with government. Through this portal you will be able to review opportunities and receive awards. You'll also have an open channel of communication with the government that is both secure and auditable where you can ask questions, submit responses, acknowledge receipt of documents, and receive awards. You can even create teams within FedConnect to manage your response or award.

This guide is designed to help you get up and running as quickly as possible. First we'll take you through the registration process. *It's fast, easy and most important, free!* Next, we'll walk you through the basics of everything from creating your organization and user profiles to submitting a response, and receiving an award.

Of course, if you ever need help, the FedConnect support team is standing by, ready to assist you.

Ready? Let's go!

www.fedconnect.net

FedConnect Support

Email: support@fedconnect.net

Phone: 1-800-899-6665

The FedConnect Support Center

is staffed Monday – Friday,

8 a.m. to 8 p.m., EDT.

Closed on Federal holidays.

Registering

Registering and using FedConnect is fast, easy, and free.

You can have an unlimited number of users under your FedConnect company account.

*You can check the status of your registration at any point by clicking the **Check Registration Status** link on the sign in page.*

When you sign in, FedConnect checks to see whether you are an administrator or a representative. What you see on the pages within FedConnect and the tasks you can perform are determined by this role designation. For more information about the differences between administrator and representative access, see page 15.

Before you can register with FedConnect, you will need the following:

- Your company's DUNS (including plus 4 extensions if applicable).

If you don't know your company's DUNS or if your company does not have a DUNS you can search for it or request one at <http://fedgov.dnb.com/webform>.

- A Federal System for Award Management (SAM) account.

If your company is not currently registered with SAM, please register at www.sam.gov before continuing with your FedConnect registration.

- Possibly, your company's SAM MPIN.

If you are the first person from your company to register, FedConnect will need your SAM MPIN to create a company account.

Guidance for how to find your MPIN on SAM is available at the following link: https://www.fsd.gov/app/answers/detail/a_id/187. If you don't have the sign in credentials for SAM, you can identify the person who does by looking up your organization's SAM record. Go to www.sam.gov and use the Search Records tool available on the home page. Click **POC** on the left menu and then look for the Electronic Business POC and Alternate Electronic Business POC information. These are the people who should know your MPIN.

After the initial FedConnect account is created, employees can register themselves without the MPIN. If you are not sure whether your company has an account with FedConnect, don't worry. Complete the registration form and FedConnect will let you know.

1. Click Register for Free Account.

This link is available on the FedConnect home page at www.fedconnect.net.

2. Fill in the requested information.

The email address that you enter on this page will become your FedConnect user ID and will be used for all communication between FedConnect and you. Make sure that any SPAM filters you or your company use are set up to allow communication from the fedconnect.net URL. If not, important notices and alerts might never reach you.

3. Click the Register button.

What happens next depends upon whether or not your company currently has a master FedConnect account.

If your company has a master FedConnect account...

- FedConnect creates an account for you with a status of pending.
- An email is sent to your company's FedConnect administrators.

An administrator decides whether to activate your account. The administrator also decides whether you are to be given administrator privileges or if you will be a standard user.

- You will receive an email from FedConnect.

When your account status has been changed, either activated or denied, you will receive an email from FedConnect.

If your company does not have a FedConnect account...

- You will be prompted to enter your company's SAM MPIN.

If you know your company's SAM MPIN, enter it in the field that now displays and click the **Register** button again. If you don't know this number, see the "Before you can register..." section on page 2 for guidance on who in your company would know this.

NOTE: The FedConnect screen currently says "CCR MPIN". We are in the process of updating that to SAM MPIN. Until that is complete, please enter your SAM MPIN in the CCR MPIN field.

- FedConnect will confirm your SAM registration.

This process normally takes just a few seconds. If your registration is valid and active, FedConnect will create a FedConnect company profile for you, download your address from SAM, and populate preferences such as your SAM-specified NAICS and PSC/FSC codes.

- FedConnect will create a personal account for the person creating this company account and make that person a FedConnect administrator.

Since the person who sets up the initial company account on FedConnect must know your agency's MPIN, that person is designated as an administrator for the FedConnect company account. An administrator can perform a variety of management duties within FedConnect, including updating company information and activating or denying registration requests by others in your company.

- An email will be sent to this new administrator.

Once the registration is complete, this new administrator will receive an email notification that the account has been activated.

*If you forget your password,
you can reset it using the
"Forgot your password"
link on the FedConnect
sign in page.*

The screenshot shows the FedConnect 'Registration Request' page. At the top left is the 'FedConnect' logo and a 'Help' link at the top right. The main heading is 'Registration Request'. Below this is a paragraph of text explaining the registration process: 'Registering with FedConnect is fast, easy, and free. If your company already has a FedConnect account, complete the requested information and click Register. If your company does not have a FedConnect account after clicking Register, you will be prompted to enter your company's CCR MPIN. For more information about the CCR MPIN or other registration requirements, click here to launch the FedConnect Ready, Set, Go! guide and review the section on registration.' Below the text is a form with several input fields: 'Company OUNS', 'First name', 'Middle initial', 'Last name', 'Display name (first last)', and 'Display name (last, first)'. To the right of these fields is a circular seal for the 'Premium Level Support Now Available' program, with a 'Click here to learn more' link. Below the name fields is a note: 'The email address entered below will be your user ID for logging in to the system. It will be also be the address we use to send you messages about opportunities, awards, or your account.' This is followed by 'Email' and 'Confirm email' fields. At the bottom left are 'Register' and 'Cancel' buttons. At the bottom right is a 'Required Field' label.

Have questions?
Email.us.at
support@fedconnect.net

Managing Your Profile

The links to access the company profile and your personal profile are at the top of most FedConnect pages.

*Some of the information in your company profile comes directly from SAM and displays in read-only mode in FedConnect. If you've recently made changes to your SAM account, be sure to click the **Update Company from www.SAM.gov** button on the FedConnect company info page.*

There are two different profiles associated with you in FedConnect, your company profile and your personal profile. Each user can edit to his or her own personal profile. However, users designated as administrators for your company can also edit the company profile. This section will explain the differences between the two and show you how to access them.

Company Profile

Editable by administrators only

The company profile includes information such as the company address, a list of company users, and the NAICS codes as well as the PSC/FSC codes in which your company is interested. The address and the codes are all downloaded automatically from SAM when the initial company account is created and cannot be edited within FedConnect. If your company makes changes to its SAM information at www.sam.gov, an administrator for your company's FedConnect account can click the **Update Company from www.SAM.gov** button within FedConnect on the Company Info page to download the changes to FedConnect.

NOTE: The "Update Company from www.SAM.gov" button currently displays as "Update Company from www.CCR.gov". We are in the process of updating the label. Although the button still references CCR, we are actually downloading your information with that in the new SAM system.

To access the company profile:

- 1. Sign in to FedConnect.**
- 2. Click the **Company Profile** link at the top of the page.**

A link to the company profile is available on most pages within FedConnect.

To move between sections within the company profile, click the menu options on the horizontal menu bar, or the buttons at the bottom of each page.

FedConnect Help | My Profile | Company Profile | Sign Out

XYZ Industries — Diane Wilson

company info | users | address | psc/fsc | name | company audits

XYZ Industries

DUNS 000000000

CAGE 0000

Update company info: [Update Company from: www.CCR.gov](#)

FedConnect sends information about opportunities, award notices, and alerts to your organization. Please select how you would like to receive these

Notification Method: Individual User Email Addresses

[Continue](#) [Return to Message Center](#)

Your Personal Profile

Editable by you and administrators only

Your personal profile is where you maintain information such as your name, how it displays or prints, and the agencies from whom you would like to receive information about opportunities or awards. It is also where you must go to change your password.

To access your personal profile:

1. Sign in to FedConnect.
2. Click the **My Profile** link at the top of the page.

A link to your profile is available on most pages within FedConnect.

To move between sections within your profile, click the menu options on the horizontal menu bar, or the buttons at the bottom of each page.

The screenshot shows the FedConnect user profile page for Diane Wilson. The page has a navigation bar at the top with links for Help, My Profile, Company Profile, and Sign Out. Below the navigation bar, the user's name and agency are displayed: XYZ Industries -- Diane Wilson. The main content area is titled "user info" and contains a table of user information. The table includes fields for First name, Middle initial, Last name, Display name (First Last), Display name (Last First), Email, Title, Office Phone, Extension, CellPhone, and Password. The Password field has a "Change Password" button next to it. At the bottom of the page, there are navigation buttons: Previous, Continue, and Return to Message Center. A small asterisk indicates a required field.

XYZ Industries	
Diane Wilson	
First name:	Diane
Middle initial:	
Last name:	Wilson
Display name (First Last):	Diane Wilson
Display name (Last First):	Wilson, Diane
Email:	d_wilson@xyzindustries.com
Title:	Manager
Office Phone:	703-555-1234
Extension:	144
CellPhone:	703-555-5678
Password:	<input type="password"/> <input type="button" value="Change Password"/>

Previous Continue Return to Message Center * Required Field

The email address listed in your personal profile is also your FedConnect user ID. Be sure the email address you use here is one you frequently monitor, as FedConnect will send email alerts for opportunities, awards, etc. to this address.

*You can change your password at any time by clicking the **Change Password** button.*

*You will receive opportunities only from agencies you specify on the Agencies tab in your user profile. To access, click **Agencies**.*

Although an administrator can access your personal profile, the administrator cannot see your password.

Have questions?
Email.us.at_
support@fedconnect.net

Searching for Opportunities

Opportunities are filtered behind the scenes to show only opportunities from agencies you specified on the Agencies tab in your user profile. To update that list, click **My Profile** at the top of the page.

Opportunities posted on FedConnect include both publicly posted (available for access by anyone) and directed (available to only a limited agency-specified list of vendors). FedConnect offers a number of options to simplify the searching process, including the ability to specify search criteria and to sort by column.

To search for opportunities as a registered vendor...

1. Sign in to FedConnect.
2. Go to Opportunities.

Click **Opportunities** and FedConnect displays the available opportunities.

FedConnect displays 10 opportunities per page. If more than 10 opportunities are available, you can click the numbered hyperlinks at the bottom of the list to page through them.

Tips for finding opportunities:

To sort the opportunities in the list by different columns, click the column headings. For example, if you know an opportunity is from a specific agency, click the **Agency** column heading and FedConnect reorders the list by agency name. You can then page through the list until you find the opportunity you seek.

Search criteria can be specified in the fields at the top of the list of opportunities. These criteria can be used to filter, or limit, the opportunities that display. Search criteria options include both basic and advanced search capabilities. To view the advanced search capability options, click **Advanced Options**. To return to the basic options, click **Search Criteria**. For easier viewing of the search results, click the [-] minus sign next to Search Criteria to hide the criteria. To reopen the search section, click the [+] plus sign.

Title	Type	Agency	Issuing Office	Issue Date	Response Due Date	PSC / FSC	NAICS	Reference Number	Audits
Air Purifiers	Solicitation	ABC	Office for Procurement	4/13/2012	05/14/2012 03:00 PM CS	J075	238320	ABC-123	Audits
Facility Construction	Solicitation	DEF	Region 6	4/19/2012	04/26/2012 04:00 PM CS	7110	337214	DEF-44-3022	Audits
Field Training	Pre-solicitation Notice	GHI	OPO	5/4/2012 9:55:58 AM	05/09/2012 05:00 PM ET	9330	333220	GHI-AA-5578	Audits
Fuel	Pre-solicitation Notice	JKL	Construction and Acquisition	5/4/2012 9:37:28 AM	05/04/2012 05:00 PM ET	5650	238160	JKL-111-A-02	Audits
IT Services	Solicitation	MNP	National Training Center	5/4/2012	05/11/2012 05:00 PM ET	D309	518210	MNP-566	Audits
Laptops	Solicitation	ABC	Division of Contracting	4/30/2012	05/21/2012 12:00 PM ET	2291	237990	ABC-129	Audits
Maintenance & Support	Solicitation	GHI	Contracting Office	5/4/2012	05/14/2012 05:00 PM ET	6810	325320	GHI-AA-5600	Audits
Printers	Pre-solicitation Notice	GHI	Region A1	5/4/2012 6:06:32 AM	06/18/2012 05:00 PM MS	Y1PA	237990	GHI-AA-5580	Audits
Translation Services	Special Notice	MNP	Office of Contracting	5/3/2012 6:20:28 PM	05/21/2012 05:00 PM ET	9130	324110	MNP-578	Audits
Printers	Solicitation	JKL	Region 5	5/3/2012	05/30/2012 04:00 PM LT	R411	531320	JKL-111-B-22	Audits

4. Review the opportunity details.

To view the details of a specific opportunity, click the hyperlink under the opportunity title to go to the opportunity summary page.

On the opportunity summary page, an overview of the opportunity can be found in the left column. The actual opportunity and all attachments are available in the documentation section in the right column. To view the form or attachments, click the document title.

If you see an opportunity you'd like to pursue, click the **Register to Receive Notifications** button in the center of the page. The page refreshes and displays the message center for the opportunity in the center column, and the Responses and Response Team sections in the right column. Your name displays in the Response Team list.

If someone from your company has already registered interest for an opportunity, the **Register to Receive Notifications** button does not display. Instead, you can join the response team by clicking the **Join** button within the Response Team section. Once on the team, you will receive all amendments, messages, and email alerts issued for the opportunity.

Anyone in your company who wants to stay informed about the opportunity should join the response team to ensure that he or she has access to all email alerts, amendments, and communications related to the opportunity.

To remove yourself from the response team, click the "X" next to your name.

The screenshot shows the FedConnect website interface. At the top, there is a navigation bar with 'FedConnect' on the left and 'Help | My Profile | Company Profile | Sign Out' on the right. Below the navigation bar, the user's name 'XYZ Industries - Diane Wilson' is displayed. The main content area is titled 'Opportunity: Laptops'. It is divided into three columns. The left column contains a 'Description' section with the text: 'This request for proposal is for laptops to support the Contracting Division at the main headquarters.' Below this is an 'Overview' section with the following details: Reference number: ABC-129, Issue date: 04/30/2012, Response due: 05/21/2012 12:00 PM ET, Set Aside: NAICS: 237990, PSC / FSC: Z201, Agency: ABC, Contracting office: Division of Contracting, Agency ABC, 123 Main Street, Washington, DC 20002, and Place of Performance: Agency ABC, Division of Contracting, 123 Main Street. The middle column contains a 'What do I do now?' section with two buttons: 'Register to Receive Notifications' and 'Return to Opportunity List'. The right column contains a 'Documentation' section with a list of documents: ABC-129, Solicitation, Overview, SF 1447, and Attachment. The 'Overview' and 'Attachment' items have small icons next to them.

Have questions?
Email.us.at
support@fedconnect.net

Creating a Response

Throughout the entire response development process, FedConnect tracks all activity and edits and stores who did what and when in an audit log.

To learn more about using the Message Center to communicate with an agency, see "Sending and Receiving Messages" on page 12.

Anyone in your company who will work on the response should join the response team to ensure that he or she has access to all email alerts, amendments, and communications related to the opportunity.

Registered vendors can electronically respond to any opportunity available to them in FedConnect.

1. Sign in to FedConnect.

2. Go to Opportunities.

Click **Opportunities** on the horizontal menu bar.

3. Open the opportunity.

Find the opportunity in the list. For help on using the search and sorting options available on this page, see "Tips for Finding Opportunities" on page 6. Once you've located the opportunity, click the hyperlink under the title to open it and view the opportunity summary page.

4. Create the response.

What displays on the opportunity summary page depends upon whether your company has registered interest with the agency through FedConnect and whether you are currently on the response team. When your company registers interest, all members of the response team are kept up to date with future amendments and email alerts. Team members can use the message center for an opportunity to communicate with the agency and to view publicly posted messages. In addition, team members can participate in response development.

To register interest, click the **Register to Receive Notifications** button in the center column. If the button does not display, your company has already registered interest for the opportunity.

The screenshot shows the FedConnect web application interface. At the top, there is a navigation bar with 'Help', 'My Profile', 'Company Profile', and 'Sign Out'. Below this, the user is identified as 'XYZ Industries - Diane Wilson'. The main content area is titled 'Opportunity: Laptops'. It is divided into several sections:

- Description:** 'This request for proposal is for laptops to support the Contracting Division at thre main headquarters'.
- Overview:** A table with the following data:

Reference number:	ABC-129
Issue date:	04/30/2012
Response due:	05/21/2012 12:00 PM ET
Set Aside:	
NAICS:	237990
PSC / FSC:	Z291
Agency:	ABC
Contracting office:	Division of Contracting
- Documentation:** A list of documents including 'ABC-129', 'Solicitation', 'Overview', 'SF 1447', and 'Attachment'.
- Responses:** A section with 'Create' and 'Submit No Response' buttons, and a message 'No responses found'.
- Response Team:** A section with a 'Team Member' button and a list of team members, including 'Diane Wilson'.

There is also an 'Inbox' section with a search bar and a message 'No messages found'. A 'Return to Opportunity List' button is located at the bottom of the main content area.

Once interest is registered and you are a member of the response team, the message center for an opportunity displays in the center column and the Responses and Response Team sections display in the column to the right.

If you are not currently on the Response Team, and want to join, click **Join** in the Response Team section. To delete yourself from the team, click the **X** next to your name.

To create and submit a response...

- Click the **Create** button in the Responses section. Your response is created and the first data entry page displays.

Some opportunities allow more than one response or alternate responses to be created and submitted. If a response has already been created for this opportunity, it displays in the Response section. Click the response description to open.

- Complete the data entry pages.

The data entry pages available to you within the response vary depending upon the opportunity and how the agency configured it. For more details about a particular page, see the online help.

To move between the pages, click the options on the menu bar or by use the Continue and Previous buttons at the bottom of the page. Each time you move from one page to the next, the system saves your data.

- Submit the response to the agency.

On the response complete page, specify the number of days the response is good and click Submit to Agency. If you are not ready to submit to the agency, but want to exit the response, click Return to Opportunity Summary at the bottom of the page, or the home button in the toolbar at the top of the page.

- Print the confirmation page.

You'll notice that on your confirmation there are two dates and times. One is when you submitted the response, and the other is when the agency's system actually picked up the response. For security reasons, FedConnect cannot directly insert any data into the agency's internal systems. Because of this, there might be a time delay between when you submit, and when the agency electronically picks up the response. But don't worry, the official time of submission is the one that was recorded when you clicked the Submit to Agency button.

For a No Bid response...

If you want to submit a No Bid type of response, click the **Submit No Response** button in the Responses section. Once a No Bid is submitted to the agency, you cannot create a standard response, and the **Create** button will be hidden. Likewise, once a standard response is created, you cannot submit a No Bid response and the **Submit No Response** button is hidden.

Editing a Response Option available for responses with a status of In Progress.

1. Follow the steps 1-3 on page 8 to open the opportunity.
2. In the Responses section, click the response description to open a response you want to edit.

Deleting a Response Option available for responses with a status of In Progress.

1. Follow the steps 1-3 on page 8 to open the opportunity.
2. In the Responses section, click the delete button on the row of a response you want to delete.

Withdrawing a Response

Option available for responses with a status of Submitted or Received.

1. Follow the steps 1-3 on page 8 to open the opportunity.
2. In the Responses section, click the **Withdraw** button on the row of a response you want to withdraw.

NOTE: If the response is for an opportunity that is not a sealed bid and the due date/time has passed, a withdrawal request is sent to the agency. It is up to the agency to decide, based upon FAR rules, whether to accept or deny the request.

Have questions?

Email.us.at
support@fedconnect.net

Receiving an Award

Anyone in your company who wants to stay informed about the award should join the team for this award to ensure that he or she has access to all email alerts, modifications, and communications related to the award.

To remove yourself from the team for this award, click the "X" next to your name.

When an agency posts an award to you through FedConnect, an email alert is sent to the email address you specified when you registered in FedConnect. You can then sign in to FedConnect to view and acknowledge the award.

1. Sign in to FedConnect.

The email alert sent to you from FedConnect includes a URL link.

2. Go to Awards.

Click **Awards** on the menu bar, and FedConnect displays all the awards that have been made to your company.

FedConnect displays 10 awards per page. If more than 10 awards display, click the numbered hyperlinks at the bottom of the awards list to page through them.

Tips for finding awards:

To sort the awards in the list by different columns, click the column headings. For example, if you know an award is from a specific agency, click the **Agency** column heading and FedConnect reorders the list by agency name. You can then page through the list until you find the award you seek.

Search criteria can be specified in the fields at the top of the list of awards. These criteria can be used to filter, or limit, the awards that display. Search criteria options include both basic and advanced search capabilities. To view the advanced search capability options, click **Advanced Options**. To return to the basic options, click **Search Criteria**. For easier viewing of the search results, click the [-] minus sign next to Search Criteria to hide the criteria. To reopen the search section, click the [+] plus sign.

The screenshot shows the FedConnect interface. At the top, there is a navigation bar with 'Help', 'My Profile', 'Company Profile', and 'Sign Out'. Below this, the user's name 'Diane Wilson' is displayed. The main heading is 'awards'. A message states: 'This list of awards includes awards made to your company as well as any publicly posted award notifications that meet the criteria in your user profile. To view a particular award, click the hyperlink under the title. For more details on using this page, click Help.' Below the message is a search bar with 'Search Criteria' and a 'Search' button. A table of awards is displayed with the following columns: Title, Agency, Issuing Office, Award Date, Award Number, Modification Number, PSC/FSC, NAICS, and Audits. The first row of data is: Maintenance Renewal, ABC, Division of Contracting, 5/2/2011, ABC CO-55678, BASE, 7030, 511210, Audits.

Title	Agency	Issuing Office	Award Date	Award Number	Modification Number	PSC/FSC	NAICS	Audits
Maintenance Renewal	ABC	Division of Contracting	5/2/2011	ABC CO-55678	BASE	7030	511210	Audits

3. Review the award details.

To view the details of a specific award, click the hyperlink under the award title to go to the award summary page.

On the award summary page, an overview of the award can be found in the left column. The actual award and all attachments are available in the Documentation section in the right column. To view the form or attachments, click the document title.

4. Join the Team.

To see all information concerning the award, click **Join**.

5. Acknowledge the award.

Click the **Acknowledge** button. If someone from your company has already acknowledged the award, the button does not display.

Later, if modifications are issued for the award, they automatically display in the Documentation section. To acknowledge these new documents, select the check box next to the title and click **Acknowledge**.

The screenshot displays the FedConnect interface for a user named Diane Wilson at XYZ Industries. The main heading is 'Award: Maintenance Renewal'. The page is divided into several sections:

- Description:** Award for FY-2013 Annual Maintenance for the Southwest Region data center.
- Overview:** A table with the following data:

Post date	05/02/2011
NAICS	511210
PSC / FSC	7030
Award date:	05/02/2011
Award / Order Number	ABC-CO-55678
Agency:	ABC
- Messages:** A central area with a search bar and a 'No messages found' message.
- Documentation:** A list of documents with checkboxes for selection:
 - ABC-CO-55678
 - BASE
 - SF 1449
 - Contract Clauses
- Acknowledge:** A button to acknowledge the award.
- Award Team:** A list of team members with checkboxes:

Team Member	
Diane Wilson	<input type="checkbox"/>
Samir Sengupta	<input type="checkbox"/>
Mane Chin	<input type="checkbox"/>
- Agency ABC:** Division of Contracting, 123 Main Street, Washington, DC 20002.
- Contact name:** Mike Watkins.

Have questions?
Email.us.at
support@fedconnect.net

Sending and Receiving Messages

An agency can respond publicly to any message you send, so be sure not to include any proprietary information.

The main message center offers a delete option to make it more manageable and easier to find things.

Messages deleted from the main message center are not actually deleted from the document record. They just don't display in your main message center any longer.

However, they are still available for viewing within the summary of the related opportunity or award. The only exceptions to this are draft messages that have not yet been sent. When you click the delete option for a draft message, it permanently removes it from FedConnect.

To restore a deleted message, go to the main message center's Deleted folder and click the restore button.

The message is returned to the folder from which it was originally deleted.

When you review an opportunity, work on a response, or manage an award, you might have questions or need to discuss something with the agency. FedConnect provides a dedicated, secure channel for that communication and automatically captures it in a permanent record. When you use FedConnect, there is no risk that you or the agency will lose any important information.

FedConnect's message center works much like a standard email program. Many of the concepts such as creating a new message, replying, or adding attachments will feel familiar. What is different is that everything sent through FedConnect is secure, recorded, and automatically associated with the related opportunity or award.

When you first sign in to FedConnect, the Message Center page displays. Therein you will see a compilation of all messages, both those directed to you, and those sent publicly. Any time you open an opportunity or award to view the details, you will also find a condensed version of the message center where the content is limited to only the communication sent or received for that specific document.

Overview

The message center contains different folders to organize your messages. Depending upon where you are in FedConnect, or the context of the page you are viewing, the available folders might differ. The actions available to you depend upon the folder you are currently viewing and your access level. To move between folders, click the folder icons on the left side of the message center.

Here are the folders that might display and what they include:

- Inbox – Public or directed messages sent to you
- Drafts – Messages you previously saved but have not yet sent
- Outbox – Messages awaiting pickup by the agency
- Sent – Messages you sent that the agency has picked up
- Deleted – Messages you deleted from the main message center view

The screenshot displays the FedConnect web interface. At the top, there is a navigation bar with links for 'Help', 'My Profile', 'Company Profile', and 'Sign Out'. Below this, the user is identified as 'XYZ Industries - Diane Wilson'. The main content area is titled 'Opportunity: Laptops'. On the left, there is a 'Description' section with a text box containing 'This request for proposal is for laptops to support the Contracting Division at the main headquarters'. Below the description is an 'Overview' section with a table of details:

Reference number:	ABC-129
Issue date:	04/30/2012
Response due:	05/21/2012 12:00 PM ET
Set Aside	
NAICS:	237990
PSC / FSC:	2291
Agency:	ABC
Contracting office:	Division of Contracting
Agency ABC:	Division of Contracting 123 Main Street Washington, DC 20002
Place of Performance:	
Agency ABC:	Division of Contracting 123 Main Street

In the center, there is an 'Inbox' section with a search criteria field and a search button. Below the search field, there are icons for 'Inbox', 'Drafts', 'Outbox', and 'Sent'. The main area of the inbox is empty, displaying 'No messages found'. At the bottom of the inbox section, there is a 'Return to Opportunity List' button.

On the right side of the interface, there are several panels: 'Documentation' with links for 'ABC-129', 'Solicitation', 'Overview', 'SF 1447', and 'Attachment'; 'Responses' with 'Create' and 'Submit No Response' buttons and a message 'No responses found'; and 'Response Team' with a 'Team Member' section listing 'Diane Wilson'.

To send a new message...

1. Sign in to FedConnect.
2. Go to the Opportunity or Award summary page.

Since all new messages must be associated with a particular opportunity or award, the ability to create a new message is available only on the opportunity and award summary pages. If the message is about an opportunity, click **Opportunities** on the menu bar. If the message concerns an award, click **Awards**. Find the opportunity or award in the list and click the hyperlink under the title to open the summary.

3. Click the **New** button on the message center.
Write your message. To add attachments, click **Attach File** and follow the prompts.
4. Click **Send**.

To reply to a message...

1. Sign in to FedConnect.
2. Find the message you wish to reply to in the message center.

You can also go directly to the opportunity or award summary pages for a particular document and locate the message in the document-specific message center. See instructions for sending a new message (above) or how to open the summary page.

3. Click the **Reply** icon at the right end of the message's row.
Write your message. To add attachments, click **Attach File** and follow the prompts.
4. Click **Send**.

The screenshot shows the FedConnect web interface. At the top, there is a navigation bar with 'Help', 'My Profile', 'Company Profile', and 'Sign Out'. Below this, the user's name 'XYZ Industries - Diane Wilson' is displayed. A warning message states: '(Recommended individual file size is 25 MB or less with a total size for all attachments of 100 MB or less)'. The main form area contains a toolbar with 'Attach File', 'Print', and 'X Delete' buttons. The message details are: 'To: ABC - Division of Contracting', 'Document: ABC-129', and 'Subject: Request for Extension'. Below the details, there is a warning: 'Warning: Any message sent may be replied to publicly. Do not enter any proprietary information here. Is there any possibility that the response due date could be pushed out by two weeks?'. At the bottom of the form, there are 'Save', 'Send', and 'Cancel' buttons.

The message center displays on the summary page of an opportunity only if you have registered interest or joined the response team. It displays on an award's summary page after you join the team.

*All information, including messages, is retrieved electronically from FedConnect by the agency's contract management system. For security reasons, FedConnect cannot directly insert any data into the agency's internal systems. Therefore there might be a time delay between when you click **Send** and when the agency actually picks up the message. During this time, the message is held in the Outbox folder. Once the agency picks up the message, it will be moved to the Sent folder.*

Have questions?
Email.us.at
support@fedconnect.net

Managing Users

Your company can have an unlimited number of FedConnect user accounts.

Each of your company's users should have his or her own account in FedConnect and should not share the password. This allows FedConnect to keep a complete audit log of who did what and when.

*Your company profile and user accounts can be accessed by an administrator by clicking the **Company Profile** link at the top of most pages.*

Your company has complete control over its FedConnect account and which employees have access. Employees who have been designated as administrators can add new users and activate users who have submitted registration requests. Administrators can also perform such tasks as changing a user's role designation and access levels, and resetting passwords.

Adding More Users to Your FedConnect Account

You can have an unlimited number of company representatives using your FedConnect account. Each additional representative must create a personal account associated with your company's master account. There are two ways this can be done—each person can register on his or her own, or if you are an administrator for your company's FedConnect account, then you can add them.

For employees who are going to register on their own, refer them to the instructions in the "Registering" section of this guide, starting on page 2.

If you are an administrator and want to add a user, here's how:

1. **Sign in to FedConnect.**
2. **Click the **Company Profile** link at the top of the page.**
3. **Click **Users** on the horizontal menu bar.**
4. **Click **Add** at the top of the user list.**

Fill in the required fields and click **Return to User List**.

A new account has been created for the user. By default, the user is a representative. An email with a system-generated password is sent to the email address you entered for the user when you created the new account. The new user can change the password at any time by updating his or her personal profile. See "Managing Your Profile" on page 4.

The screenshot shows the FedConnect user management interface. At the top, the user is logged in as 'Diane Wilson' and the company is 'XYZ Industries'. The navigation bar includes 'Help', 'My Profile', 'Company Profile', and 'Sign Out'. The main content area shows a 'users' section for 'COMPUSEARCH SOFTWARE SYSTEMS, INC.' with search criteria and a table of users.

First Name	Last Name	Email	Status	Role
Diane	Wilson	dwilson@xyzindustries.com	Active	Vendor Administrator
Maria	Chin	mchin@xyzindustries.com	Active	Vendor Administrator
Samir	Sengupta	ssengupta@xyzindustries.com	Active	Vendor Representative

Managing Your User Accounts

If you are an administrator for your company's FedConnect account, you have the ability to control a variety of things concerning a particular user. For example, you could change someone's role (administrator/representative), activate or deactivate his or her account, specify access rights, and reset his or her password.

You can also manage the personal details of your own account. You cannot, however, deactivate yourself or change your role designation. Another administrator must assist you.

To access the administrative tools for a particular user:

1. Sign in to FedConnect.
2. Click the **Company Profile** link at the top of the page.
3. Click **Users** on the horizontal menu bar.
4. Select the user by clicking the hyperlink under the name.
5. Click **Admin Tools** on the horizontal menu.

The screenshot shows the FedConnect web application interface. At the top, the logo 'FedConnect' is on the left, and navigation links 'Help', 'My Profile', 'Company Profile', and 'Sign Out' are on the right. Below the logo, it says 'XYZ Industries -- Diane Wilson'. The main content area is titled 'admin tools' and contains a sub-section for 'user info' and 'agencies'. Under 'user info', the user 'Samir Sengupta' is listed. The 'Role' is 'Vendor Representative', the 'Status' is 'Active', and there is a 'Reset Password' button. A 'Comments' field is also present. At the bottom of the form, there are 'Continue' and 'Return to User List' buttons.

There are two types of users: administrators and representatives. Page displays are controlled by this role designation. Here are the differences between the two roles:

Representative

Access to:

- Opportunities
- Responses
- Awards
- Communication tools
- His or her personal profile

Administrator

All access rights available to the representative, plus...

- Full access to the company profile
- Full access to all user profiles for your company.

NOTE: Although an administrator has access to another user's profile the Administrator cannot see that user's password.

Have questions?

Email.us.at
support@fedconnect.net

Quick Answers

I've forgotten my password and locked my account, what do I do?

Contact your FedConnect administrator. You can find the list of FedConnect administrator's for your company at <https://www.fedconnect.net/FedConnect/Contact.aspx>.

My account has been deactivated, what do I do?

Each company manages its own users and who has access. If your account has been deactivated, contact your company's FedConnect administrator. <https://www.fedconnect.net/FedConnect/Contact.aspx>

Are there limits to the types of files that can be included as an attachment to a response or message?

Yes, there are certain file types that cannot be uploaded. We've followed Microsoft's lead and use the list they've developed for excluding files with extensions that are considered high risk. For a complete list of these files, please visit, <http://support.microsoft.com/?kbid=883260>.

What if I accidentally submit a response before I meant to?

If the due date and time have not passed, you can simply withdraw the response. After the due date and time, depending upon the type of opportunity and the FAR rules governing it, you might be able to submit a withdrawal request. It would then be up to the agency to decide whether or not to allow the withdrawal. For more details, see page 9.

Initially my company submitted a No Bid type of response, but now we changed our minds and want to submit a proposal. How do we start over?

If the due date and time have not passed, you can simply withdraw the No Bid response and then create a new response for submission.

Have questions?

Email.us.at
support@fedconnect.net

I've submitted my response, but the confirmation page says that it is queued awaiting agency pickup. What does this mean and will it still be counted as having been submitted on time?

Due to agency security requirements, FedConnect can never upload data into an agency's database. Instead, it is up to each agency to retrieve the information from FedConnect. This retrieval is an automatic process that happens on a schedule determined by each individual participating agency.

When you submit your response, the time of submission is captured and recorded. This is the official time of submission to be used in determining whether it was on time. It does not matter if the agency picks it up a minute later or the next day. Their pickup time is not used to calculate whether you met the deadline. For some types of opportunities, the agency cannot pick up until after the official due date and time.

How do I know when the agency picks up my response?

You can see the exact date/time of pickup by opening the response and going to the Confirmation page.

I'm working on a response and I've noticed that some of my work has been changed. How can that happen?

Anyone on the Response Team has access to the In Progress response and can make changes. To see who has changed what, click the History link within the Responses section of the opportunity's summary page. The history contains a complete audit of who did what and when.

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