U.S. Army Corps of Engineers

F U S R A P

Niagara Falls Storage Site FUSRAP Site
Lewiston, New York

Quality Control Plan for the Interim Waste Containment Structure Feasibility Study at the Niagara Falls Storage Site

Prepared for:
U.S. Army Corps of Engineers
Buffalo District

Prepared by:
Science Applications International Corporation
Columbus, Ohio

Contract: W912P4-10-D-0007 DN0001

November 2010

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4449 Easton Way, Suite 130
Columbus, Ohio 43219

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ACRONYMS AND ABREVIATIONS

AEC	Atomic Energy Commission
ALARA	As Low As Reasonably Achievable
ARAR	Applicable or Relevant and Appropriate Requirements
BOP	Balance of Plant
CADD	Computer-aided Drafting
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHP	Certified Health Physicist
CRF	Central Records Facility
CX	Center for Expertise
DRR	Document Review Record
ES&H	Environmental Safety and Health
FS	Feasibility Study
FUSRAP	Formerly Utilized Sites Remedial Action Program
GIS	Geographic Information System
HTRW	Hazardous, Toxic, Radiological Waste
HQ	Headquarters
ITR	Independent Technical Review
IWCS	Interim Waste Containment Structure
MED	Manhattan Engineer District
NCR	Nonconformance Report
NFSS	Niagara Falls Storage Site
OMMP	Operation, Maintenance, and Monitoring Plan
OU	Operable Unit
PDT	Product Delivery Team
PRG	Preliminary Remediation Goals
PWR	Pressurized Water Reactor
QAAP	Quality Assurance Administrative Procedures
QAPP	Quality Assurance Program Plan
QATP	Quality Assurance Technical Procedures
QA/QC	Quality Assurance/Quality Control
QCP	Quality Control Plan
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RESRAD	Residual Radioactivity (computer code)
RI	Remedial Investigation
RIR	Remedial Investigation Report
RSO	Radiation Safety Officer
SAIC	Science Applications International Corporation
SESOIL	Seasonal Soil Compartment
SOW	Scope of Work
SWMM	Storm Water Management Model
TM	Technical Memorandum
TSCA	Toxic Substance Control Act
USACE	U.S. Army Corps of Engineers
USDOE	U.S. Department of Energy

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1.0 INTRODUCTION

Science Applications International Corporation (SAIC) was contracted by the United States Army Corps of Engineers (USACE) - Buffalo District to develop a Quality Control Plan (QCP) for the Interim Waste Containment Structure (IWCS) Feasibility Study (FS) at the Niagara Falls Storage Site (NFSS) in Lewiston, New York. This task was performed under Contract W912P4-10-D-0007 DN0001. This QCP addresses project personnel, task descriptions, and schedule for project tasks identified in the July 2010 *Scope of Work (SOW) for the Feasibility Study for the Interim Waste Containment Structure at the Niagara Falls Storage Site*. Attachment 1 contains the resumes of SAIC and its subcontractor's technical personnel identified in Figure 2.1, the organizational chart for the NFSS IWCS FS.

1.1 PROJECT BACKGROUND

The long term objective of this project is to remediate the radiological contamination, attributed to activities of the Manhattan Engineer District/Atomic Energy Commission (MED/AEC), in a manner that satisfies the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as set forth in the 1988 guidance document EPA 540 G-89 004, *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA.* While chemical contamination is normally addressed only when collocated with radioactive contamination under the Formerly Utilized Sites Remedial Action Program (FUSRAP), USACE will remediate both radioactive and chemical contamination because NFSS is a federally-owned property. Based on conclusions drawn from the Remedial Investigation (RI) regarding the nature and extent of radiological and chemical contamination at the site, remedial alternatives will be developed and evaluated against CERCLA criteria.

In 2007, in support of the RI/FS effort, USACE released to the public the RI, Baseline Risk Assessment, and Groundwater Flow and Contaminant Transport Modeling Reports for the NFSS. In 2009, field activities were conducted to address recommendations from the December 2007 NFSS RI Report (RIR) and public comments. USACE is currently developing the RIR Addendum for public release.

The USACE has delineated requirements in the July 2010 SOW for continued support of the FS currently in progress. As a continuation to the FS process for NFSS, USACE is performing a FS for the IWCS Operable Unit (OU). Three OUs identified in the *Feasibility Study Work Plan for NFSS (December 29, 2009)* include:

- **IWCS:** residues and other remedial action waste that the United States Department of Energy (USDOE) placed in the 10-acre disposal cell within the diked area;
- **Balance of Plant (BOP):** all media not included in the IWCS OU, and excluding groundwater; and
- **Groundwater:** groundwater in both upper and lower water-bearing zones at NFSS.

An informed decision on the BOP and Groundwater OUs can only be made in the context of the decision made for the IWCS materials. Hence, decisions for the BOP and Groundwater OUs are phased to occur after that for the IWCS OU.

1.2 SCOPE OF WORK

USACE has identified the need for a FS for the IWCS OU in continued support of the FS process at the NFSS. In support of this effort, the USACE issued a July 2010 SOW that delineates requirements for:

- updating the project QCP,
- developing two IWCS FS Technical Memorandums (TMs),
- preparing the IWCS FS Report,
- participating in Product Delivery Team (PDT) teleconferences,
- participating in quarterly project management meetings,
- participating in project planning meetings,
- providing project management scheduling support,
- providing public workshop support
- providing pre-workshop public round table support,
- providing public round table support,
- providing general FS technical support, and
- developing an IWCS Operation, Maintenance, and Monitoring Plan (OMMP).

The following tasks will be completed as identified in the July 2010 SOW.

Table 1.1. Delivery Order Detailed Task Descriptions

Task Number	IWCS FS Task Description
1	FS QCP Addendum and Independent Technical (ITR) Review Plan
2A	Remedial Action Objectives (RAOs) and Applicable or Relevant and Appropriate Requirements (ARARs) for both the IWCS and BOP OUs (IWCS FS TM #4)
2B	IWCS Remedial Alternatives Technologies Development and Screening (IWCS FS TM #5)
3 (Optional)	IWCS FS Report
4A-C (Optional)	Monthly NFSS PDT Teleconferences
5A-C (Optional)	Quarterly NFSS Project Management Meetings
6A-D (Optional)	NFSS Project Management Scheduling Support
7A-D (Optional)	NFSS Project Planning Meetings
8A-D (Optional)	Public Workshop Support
8E-H (Optional)	Pre-Workshop Public Round Table Support
8I-L (Optional)	Public Round Table Support
9A-D (Optional)	General FS Technical Support
10A (Optional)	IWCS OMMP – Project Meeting
10B (Optional)	IWCS OMMP Development

2.0 MANAGEMENT PHILOSOPHY

SAIC is dedicated to providing its clients unequaled quality works with ongoing Quality Assurance/Quality Control (QA/QC) measures. The full SAIC QA/QC program consists of the Quality Assurance Program Plan (QAPP) and the Quality Assurance Administrative Procedures (QAAPs). SAIC is committed to meet or exceed our client's specified requirements at the agreed price within schedule.

2.1 MANAGEMENT APPROACH

All management level personnel will ensure that applicable QA program requirements are adhered to and will encourage staff to identify technical or administrative problems and participate in their resolution. The SAIC QA program has the complete approval and support of the SAIC senior management, including the resources necessary to ensure its implementation. The program and project managers are responsible for delivering cost-effective, high quality products, on time within the scope of the contract. Each individual is responsible for the quality of his or her work.

The QA program will provide control over activities to an extent consistent with risk, complexity, duration, importance, health and safety considerations, and USACE expectations. SAIC will provide indoctrination and training of personnel to the extent necessary to perform their assigned tasks, and to ensure that proficiency is achieved and maintained.

The preparatory phase of the QA program is performed prior to beginning work and may include a review of the applicable work scope, identification of procedures for performing the work, personnel assignments, and a kick-off meeting to discuss scope, budget, and schedule. The follow-up phase may include checks of calculations, data validation, review of drawings or design, etc. Both editorial and technical reviews are conducted on all documents and are documented by the reviewer as discussed later in this QCP.

2.2 MANAGEMENT STRUCTURE

Figure 2.1 illustrates the organizational structure for the NFSS IWCS FS. Table 2.1 presents the management personnel that will be used to complete activities for the IWCS FS SOW.

Table 2.1. Key Management SAIC Personnel Assignments and Qualifications for the IWCS FS at the NFSS in Lewiston, New York

Project Assignment	Minimum Degree Requirements	Minimum Qualifications
Program Manager Jeff DeVaughn	B.S. Engineering or related field	10+ years experience in Hazardous, Toxic, Radiological Waste (HTRW) projects including site investigations and related environmental evaluations / studies.
IWCS FS Project Manager George Butterworth	B.S. Engineering or related field	10+ years of experience in HTRW projects including site investigations and engineering evaluations/studies.

Table 2.1 (continued). Key Management SAIC Personnel Assignments and Qualifications for the IWCS FS at the NFSS in Lewiston, New York

Project Assignment	Minimum Degree Requirements	Minimum Qualifications
IWCS FS Acting Deputy Project Manager Rebecca Biggs	B.S. Engineering or related field	5+ years of experience in HTRW projects including site investigations and engineering evaluations/studies.
Radiation Safety Officer/Certified Health Physicist Dennis Chambers	B.S. Health Physics or Radiation Engineering	7+ years of experience in HTRW projects including site investigations and engineering studies associated with radiological contamination.
QA/QC Officer Steve Davis	B.S. Science, Engineering or related field	5+ years of experience in HTRW projects including site investigations and related environmental evaluations/studies.
Data Management Lead Craig Laskowski	B.S. Computer Science, Engineering, or related field	6+ years of experience in data management
Regulatory and Risk Assessment Lead Hallie Serazin	B.S. Science, Engineering, or related field	6+ years of experience in HTRW projects including risk assessment for site investigations, remedial investigations, and related environmental evaluations/studies.
Project Task Leaders George Butterworth Rebecca Biggs Hallie Serazin Corey Pacer	B.S. Science, Engineering or related field	8+ years of experience in HTRW projects including any of the following: treatability studies, cost analyses, volume estimating/ modeling

2.2.1 Personnel Responsibilities

Roles of project personnel are described below.

2.2.1.1 SAIC Program Manager

The SAIC Program Manager oversees all activities associated with the USACE-Buffalo District, as a client, to insure consistent quality and support across all USACE-Buffalo projects. This individual also coordinates among the individual SAIC project managers to apply lessons learned. The SAIC Program Manager will serve as a secondary point of contact with the USACE-NFSS Program Manager and USACE-Buffalo District Project Engineer.

2.2.1.2 SAIC IWCS FS Project Manager

The SAIC IWCS FS Project Manager manages the overall project performance and quality of the project deliverables. This individual will provide the overall financial management of the project (including monthly accruals), and serve as the primary point of contact with the USACE NFSS Program Manager and USACE-Buffalo District Project Engineer. This individual will also be the main SAIC contact for other USACE-Buffalo contractors performing work in support of the IWCS FS.

The SAIC IWCS FS Project Manager is responsible for all project activities, including project objectives, data analysis, RAO development, alternative development and analysis, and report preparation. This individual will develop, monitor, and fill project staffing needs, delegate specific responsibilities to project team members, and coordinate with administrative staff to maintain a coordinated and timely flow of project activities. The SAIC IWCS FS Project Manager reports directly to the SAIC Program Manager.

The SAIC IWCS FS Project Manager is responsible for the timely submittal of all draft and final deliverables in the quantities requested. If at any time, adhering to the schedule will compromise the quality of the deliverable, the SAIC Project Manager will give the USACE Project Manager sufficient notice of the delay and justify the need for an extension by explaining the impact to the project/deliverable.

2.2.1.3 SAIC IWCS FS Deputy Project Manager

The SAIC IWCS FS Deputy Project Manager assists the SAIC IWCS FS Project Manager in the management of the overall project performance and quality of the project deliverables. In the event that the SAIC IWCS FS Project Manager cannot perform routine project management duties due to a time conflict with project management responsibilities and technical direction responsibilities, the SAIC IWCS FS Deputy Project Manager will perform project management duties for the SAIC IWCS FS Project Manager. The SAIC IWCS FS Deputy Project Manager will obtain final approval from the SAIC IWCS FS Project Manager for all project management submittals.

2.2.1.4 SAIC Technical Advisors

The SAIC Senior Technical Advisors will provide technical support and advice as well as perform review work on products and deliverables. Because this individual will assume multiple roles, these individuals will only perform a technical review on a deliverable if not directly involved with developing that deliverable. The SAIC Senior Technical Advisor will provide support to the SAIC IWCS FS Project Manager.

2.2.1.5 SAIC Quality Assurance/Quality Control (QA/QC) Officer

The SAIC QA/QC Officer is responsible for the project QA/QC in accordance with the requirements of the appropriate SAIC management guidance. This individual will be responsible for oversight and review of engineering and design documents and will ensure that the quality control responsibilities of the engineering project team members are carried out. The SAIC QA/QC Officer reports directly to the SAIC IWCS FS Project Manager, but will inform the SAIC Managers, as appropriate, of all information and decisions reported.

2.2.1.6 SAIC Project Controls, Contracting, and Procurement Team

The SAIC Project Controller will perform project cost tracking and invoicing tasks, and assist with monthly accrual activities, as needed. This individual will also provide project scheduling support. The SAIC Project Controller will provide support to the SAIC Program Manager, the SAIC IWCS FS Project Manager and the SAIC Contracts Representative.

The SAIC Contracts Representative will provide project contracting support for issues related to contract fulfillment, contract modifications, client assessments, and contract closeout. The SAIC Contracts Representative will provide support to the SAIC Program Manager and SAIC IWCS FS Project Manager. The SAIC Contracts Representative will also interact with USACE-Buffalo District contract personnel, as needed, to facilitate execution of the contract.

The SAIC Purchasing Officer will provide project procurement support for the project, and will assist with all subcontracts. The SAIC Purchasing Officer will provide support to the SAIC Project Manager.

2.2.1.7 SAIC Radiation Safety Officer (RSO)/Certified Health Physicist (CHP)

The SAIC RSO is responsible for confirming that radiation safety procedures designed to protect personnel are identified appropriately in support of proposed IWCS FS activities. The RSO will also

serve as the CHP. The CHP will serve as the lead HP during the IWCS FS Effort. The SAIC RSO reports directly to the SAIC IWCS FS Project Manager, but will inform the SAIC Managers, as appropriate, of all information and decisions made pertinent to their areas of responsibility.

2.2.1.8 SAIC Regulatory and Risk Assessment Lead

The SAIC Regulatory and Risk Assessment Lead is responsible for providing technical support to the project related to human health and ecological risk issues. This individual is responsible for developing risk methodologies and evaluations to support RAOs and preliminary remediation goal (PRG) development. This individual will provide support to the IWCS FS Project Manager.

2.2.1.9 SAIC Public Meeting Support and Technical Editors

SAIC will provide personnel to assist with public meeting setup and execution (i.e., poster display production, slide presentation assistance, etc.). SAIC Technical Editors will perform an editorial and format review of all document deliverables, and assist with overall document production. The SAIC Technical Editors will support the SAIC Project Team, as needed.

2.2.1.10 SAIC Data Management Lead

The SAIC Data Management Lead, and data management personnel, will be responsible for managing any databases used during the project, including any pertinent data identified during the document review task. The data management team will be responsible for the accumulation, control, reduction, validation, documentation, and storage of project data. The SAIC Data Management Lead will provide support to the IWCS FS Project Manager.

2.2.1.11 SAIC Project Task Leaders

The SAIC Project Task Leaders will provide support to the SAIC IWCS FS Project Manager by ensuring project tasks are completed per the SOW and as directed by the SAIC IWCS FS Project Manager. The SAIC Project Task Leaders will coordinate with other project team members to ensure deliverable objectives are met per the approved project schedule.

2.2.1.12 SAIC Subcontracted Technical Support

SAIC has subcontracted with AVESI and Energy Solutions to provide technical support for this project. AVESI and Energy Solutions will provide technical support and advice as well as perform review of work products and deliverables. Specifically, AVESI will provide health physics and data management expertise; Energy Solutions will provide expertise relating to radiological waste handling and disposition.

2.2.2 Project Team

The SAIC Project Team illustrated in Figure 2.1 is identified in Table 2.2.

Table 2.2. Project Team Identification

Name	Position/Role	Phone	Fax	Organization
Jeff DeVaughn	Program Manager and Technical Advisor	(330) 405-5813	(330) 405-9811	SAIC
George Butterworth	IWCS FS Project Manager	(931) 840-0253	(931) 840-0253	SAIC
Dennis Chambers	Radiation Safety Officer/Certified Health Physicist/Technical Advisor	(314) 770-3000	(314) 770-3067	SAIC
Steve Davis	QA/QC Officer	(865) 481-4755	(865) 481-4774	SAIC
Hallie Serazin	Regulatory and Risk Assessment Lead	(614) 473-8834	(614) 793-7620	SAIC
Harry Fatkin III	Radiation Risk Specialist	(865) 481-8717	(865) 482-7257	SAIC
Rebecca Biggs	Acting Deputy Project Manager/Project Task Leader/Senior Geologist	(614) 473-8836	(614) 473-8819	SAIC
Craig Laskowski	Data Management Lead	(330) 405-5818	(330) 405-9811	SAIC
Corey Pacer	Project Task Leader	(330) 405-5811	(330) 405-9811	SAIC
Dave Kulikowski	Technical/Data Consultant	(614) 840-9566	(866) 376-6246	AVESI
David Lyerla	Health Physics Consultant	(618) 210-0631	(618) 628-9878	AVESI
James Barber	Radiation/Waste Consultant	(803) 502-9487	(803) 644-3720	Energy Solutions
Isaac Diggs	Radiation/Waste Consultant	(865) 220-4278	(865) 481-2580	Energy Solutions
John North	Radiation/Waste Consultant	(803) 644-3514	(803) 644-3720	Energy Solutions
Linda DiJohnson	Project Controls	(717) 920-8982	(717) 901-8149	SAIC
Martha Turpin	Senior Contracts Rep.	(865) 481-4700	(865) 481-4693	SAIC
Melissa Cunkle	Purchasing Officer	(717) 901-8864	(717) 901-8109	SAIC
Jackie Getson	Junior Geologist	(614) 473-8833	(614) 473-8819	SAIC
Sharon Robers	Risk Assessment Support	((330) 405-5174	(330) 405-9811	SAIC
Ellen Rager	Technical Editor /Public Meeting Support	(419) 771-8103	NA	SAIC
Heather Ann	Technical Editor/Public Meeting and Document Production Support	(330) 405-5804	(330) 405-9811	SAIC

2.2.3 SAIC Technical Review and Independent Technical Review

Document reviews will be conducted for the NFSS IWCS FS in accordance with SAIC QAAP. These reviews will be conducted by senior SAIC personnel experienced in the subject matter. These individuals may be familiar with the NFSS RI/FS and may have worked on other aspects of the project. However, they will not have been involved directly in the preparation of the specific work product they are reviewing. Senior technical reviewer's comments and responses to those comments ordinarily will not be submitted to USACE with the deliverable.

In order to ensure CERCLA criteria are met and evaluated and standard engineering details and cost estimates appropriate for this project's requirements are provided, draft submittals for this delivery order will have an ITR performed before being submitted to the customer. For the NFSS IWCS FS work products, SAIC has assembled a team of ITR personnel who will be completely independent of the work product being reviewed. Should an individual prepare a section of a document, that individual cannot perform an ITR for that section, but may be used on the ITR Team to review other sections of the work product. These senior individuals are familiar with the subject matter. At a minimum, ITR personnel for deliverables that have a radiation component will include a health physicist. ITR comments and responses to those comments will be included with all draft (R1) deliverables.

Each major deliverable will be reviewed by ITR personnel who will be identified on a form that will accompany each document. The Certification of Independent Technical Review (Figure 2.2) shall be used to document reviewer comments and the resolution of those comments. Upon comment resolution, a Statement of Independent Technical Review (Figure 2.3) will be signed by the reviewer(s) and Project Manager, (or appropriate task manager) to state that they have reviewed the product and resolved all internal comments, and that the product is ready for release to the USACE. Comments generated by the reviewer(s) and the resolution of these comments will be retained in project files. The Statement of Independent Technical Review shall be submitted to USACE with all draft deliverables. In the event that certain members of the ITR Team are not available to perform a submittal review, a qualified alternate reviewer will be selected by the Project Manager to perform the ITR.

The members of the ITR Team are listed in Table 2.3. Documents requiring an ITR are listed in Table 2.4.

Table 2.3. Independent Technical Review Team

Name	Qualifications	Phone	Fax	Organization
Dennis Chambers, CHP	B.A. in Science Technology, Radiation Protection. 30+ years in applied Health Physics including developing and managing comprehensive radiological remediation and health physics programs under FUSRAP.	(314) 770-3000	(314) 770-3067	SAIC
Steve Davis, CIH, CSP	M.S.P.H, Industrial Hygiene. 25 years in industrial hygiene, safety, environmental compliance and program management. Currently serves as the Environmental Compliance and Health and Safety Manager for the Engineering and Infrastructure Business Unit of SAIC. Experience includes research, program management, management of behavior-based-safety systems, project management and line management.	(865) 481-4755	(865) 481-4774	SAIC
Jeff DeVaughn	B.S. Geology. 15+ years of experience in HTRW projects, including environmental compliance, site assessment/characterization, and site remediation/restoration.	(330) 405-5813	(330) 405-9811	SAIC
Harry Fatkin III	B.S. Engineering Analysis, Environmental Systems Engineering concentration. Risk Scientist with experience conducting human health and ecological risk assessment for both chemicals and radionuclides. Abilities include programming [SAS (statistical software), visual basic, sql], modeling [vapor intrusion, Storm Water Management Model (SWMM), Seasonal Soil Compartment (SESOIL), Residual Radioactivity (RESRAD)], and database management (access, SAS, Oracle).	(865) 481-8717	(865) 482-7257	SAIC
Steve Passig	B.S. Radiation Protection Science. 22 + years experience in the health physics field, including with the U. S. Naval Nuclear Power Program. Experience includes work related to radiochemistry of a pressurized water reactor (PWR), coverage of normal operations and maintenance tasks for a PWR, internal dosimetry programs, external dosimetry, Environmental Safety and Health (ES&H) supervisor for field activities, training/training supervisor, environmental monitoring programs, and As Low As Reasonably Achievable (ALARA) program management.	(314) 770-3026	(314) 344-4349	SAIC

Table 2.3 (continued). Independent Technical Review Team

Name	Qualifications	Phone	Fax	Organization
James Barber, CHP,CHCM	B.S. in Science and Technology w/Radiation Protection Specialization. More than 20 years experience in radiation protection program development and management. In depth understanding of the radiological threats and mitigations for the Fernald K-65 Silos waste stream.	(803) 502-9487	(803) 644-3720	Energy Solutions
Isaac W. Diggs, Sr., P.E.	B.S. Physics/Mathematics; M.S. Engineering Mechanics. 30+ years experience in waste management, environmental restoration, and nuclear materials management in environments requiring management control and disposition of radioactive, hazardous and toxic substances in accordance with CERCLA, Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA) and other environmental regulations. Former Program Manager for remediation planning and restoration of Fernald Waste Storage Area.	(865) 220-4278	(865) 481-2580	Energy Solutions
John North, PhD	PhD Agricultural Engineering. 17+ years in the environmental field planning and managing hazardous waste disposition projects. Project Manager for the Fernald K-65 Silos Remediation Project	(803) 644-3514	(803) 644-3720	Energy Solutions

Table 2.4. IWCS FS Documents Requiring an Independent Technical Review

IWCS FS Task	Document Requiring an ITR
Task 2A	IWCS FS TM #4 - RAOs/ARARs for the IWCS/BOP OUs
Task 2B	IWCS FS TM #5 – IWCS Remedial Alternatives Technologies Development and Screening
Task 3 (Optional)	IWCS FS Report
Task 10 (Optional)	IWCS OMMP

2.3 DESIGN TOOLS

The following computer software programs may be used in the performance of this project, if necessary.

Groundwater Modeling Software
The fate and transport model will be used to evaluate the no action alternative. Optimization techniques may be required to evaluate remedial alternatives and will be selected with input from USACE to ensure compatibility.

Adobe Acrobat
All portable document formats will be produced using Adobe Acrobat version 9.3.

Computer-aided Drafting (CADD), Arc View and/or MicroStation – Geographic Information System (GIS) and Drafting Software
Site maps, figures, and engineering drawings will be prepared using any of these software packages to ensure compatibility with the Buffalo District versions of the software. As necessary, drawings or figures will be converted to a USACE usable format for submittal.

EarthVision Software
Earth Vision software may be used in developing BOP volume estimates, if necessary.

Microsoft Excel
Microsoft Excel will be used in preparing cost estimates for the IWCS FS process, as appropriate. If necessary, screening level cost estimates may be solicited from contractors based on preliminary vendor information and/or estimates for similar projects.

Microsoft Office
Microsoft Office software shall be used for word-processing and spreadsheet preparation. Geospatial data shall be submitted in Microsoft Access format. Prior to submittal, documents will be converted to Microsoft Office version 2003, or later as directed by USACE.

Microsoft Project
The IWCS FS project schedule will be completed using Microsoft Project 2003 or later version.

SESOIL (Seasonal Soil Compartment)
SESOIL is a model for long-term pollutant fate and migration in the unsaturated soil zone. The SESOIL model program will be used, if necessary, to predict the rate of contaminant migration through the unsaturated zone. Output from the model will be supplied to the USACE contractor responsible for the fate and transport model.

RESRAD (Residual radioactivity)
RESRAD computer code Version 6.2 will be used for computing radiological risks and for generating soil radiological cleanup criteria. RESRAD may be used to generate radon emanation rates.

2.4 PROJECT SCHEDULE

The project schedule is presented in Figure 2.5. This schedule accounts for the completion of currently funded tasks associated with the IWCS FS as well as current ongoing tasks associated with previous NFSS efforts. Tasks associated with routine activities or deliverables (e.g., monthly PDT teleconferences, project schedule support, weekly status reports, etc.) have not been included on Figure 2.5. The schedule is expected to be updated on a monthly basis.

2.5 COST CONTROL

Financial management tools and client reports will be developed to track project cost information for submittal to USACE. Budgets have been prepared on a task and subtask basis to allow close control and tracking of project costs. The SAIC IWCS FS Project Manager is directly responsible for cost and schedule control. Prior to the start of each task, the SAIC IWCS FS Project Manager will meet with the project team to discuss the budget or level of effort required for each task. This will help ensure a clear understanding of the scope and effort for each task prior to beginning work. The SAIC IWCS FS Project Manager will report cost or schedule issues to the SAIC Program Manager in a timely manner to allow for remedial actions or for discussions with/notifications to the USACE Project Manager. The SAIC Program Manager will, at a minimum, assess the overall cost and schedule status on a monthly basis.

2.6 CONSTRUCTION COST ESTIMATE CONTROL

As discussed in Section 2.3, Microsoft Excel will be used in preparing cost estimates. If necessary, screening level cost estimates may be solicited from contractors based on preliminary vendor information and/or estimates for similar projects. The IWCS FS Project Manager, shall be responsible for reviewing cost estimates for integrity and soundness.

2.7 COMMUNICATION

Communications between the USACE and SAIC will consist of the following:

- Weekly written updates on the status of project activities will be submitted to the USACE NFSS Program Manager.
- Monthly cost reports and a summary of monthly accomplishments will be submitted to USACE.
- Monthly man-hour reports documenting the hours for both administrative and field work activities will be submitted by the 5th of each month.
- A schedule update in Microsoft Project format will be submitted to USACE on a monthly basis, as needed. Additionally, weekly status reports regarding ongoing and planned activities will be provided.
- Project decisions shall be documented by correspondence from the SAIC Program or Project Manager, as appropriate, to the USACE Project Engineer and USACE Project Manager. This correspondence shall be issued no later than 5 days after a decision has been made.
- Monthly conference calls will be held with the USACE PDT and other contractors involved in this project.
- Conference calls will be held on an as-needed basis to discuss ongoing work, address outstanding issues, and discuss any other pertinent information about project progress. Participants may include USACE, SAIC and its subcontractors, and ITR team members.

The individuals involved in this communication include:

- USACE NFSS Program Manager — John Busse
- USACE NFSS Project Engineer — Jane Staten

- SAIC Buffalo FUSRAP Program Manager Jeff DeVaughn
- SAIC NFSS IWCS FS Project Manager George Butterworth

2.8 QUALITY CONTROL PLAN UPDATES

Any proposed changes to the management approach or structure for this project, including changes to key personnel assignments and roles, will be submitted to USACE for approval. Upon USACE approval the QCP will be revised accordingly.

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3.0 CUSTOMER INVOLVEMENT

The primary customer for the services provided through this delivery order is the USACE-Buffalo District. This information will also be reviewed by additional USACE personnel (i.e. Division, Center for Expertise [CX], Headquarters [HQ]) and by various regulatory organizations. Representatives of these organizations will be involved in meetings pertaining to implementation of delivery order activities and in review of draft documents generated in the process.

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4.0 IDENTIFICATION OF QUALITY INDICATORS

SAIC Procedures QAAP 15.1, “Control of Nonconforming Items and Services,” and QAAP 16.1, “Corrective Action,” shall be used to identify, track, and correct items and services that could have a potentially adverse effect on the quality of the work to be performed. Nonconformance issues shall be tracked and managed using nonconformance reports (NCRs).

SAIC Procedure QAAP 17.1, “Records Management,” will be used for the collection, control, processing, storage, and retrieval of critical project records submitted to SAIC's Central Records Facility (CRF). SAIC Procedure QAAP 3.1, “Document Review,” will be implemented to document and track both technical and editorial review of draft submittals. Document review records will be maintained in the Project File and CRF.

SAIC Procedure QAAP 18.4, “Client Assessments,” will be implemented by the SAIC Project Manager to ensure SAIC performance under this delivery order is meeting client expectations and to identify areas for improvement.

Where not superseded by upper-tier (USACE) requirements, field, data, and engineering processes will be governed by SAIC Quality Assurance Technical Procedures (QATP) contained in QATP Volume I: Data Management, QATP Volume II: Field Standard Operating Procedures, and QATP Volume III: Engineering and Construction. The following engineering procedures from Volume III are applicable to this task:

- Engineering and Quality Control Reviews
- Engineering Drawings and Sketches
- Preparation and Control of Technical Specifications
- Engineering Calculations
- Criteria, Codes and Standards
- Design Coordination and Interface Control

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5.0 PROVISIONS FOR FEEDBACK AND LESSONS LEARNED

Documented feedback from the client is obtained through regular communication and client assessment of SAIC performance. Client assessments will be performed by the SAIC Project Manager in accordance with SAIC Procedure QAAP 18.4: "Client Assessments." Information obtained from client assessments is analyzed and used to improve customer satisfaction and prevent future problems.

Lessons learned are communicated at scheduled monthly status meetings attended by delivery order managers performing work for the USACE-Buffalo District. Lessons learned are also documented through the SAIC monthly reporting process and the SAIC-internal Engineering and Environmental Management Group Lessons Learned database.

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6.0 REFERENCE

U.S. Army Corps of Engineers (USACE) 2009. Feasibility Study Work Plan for the Niagara Falls Storage Site. December 2009.

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Figures

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Figure 2.1
Organizational Chart

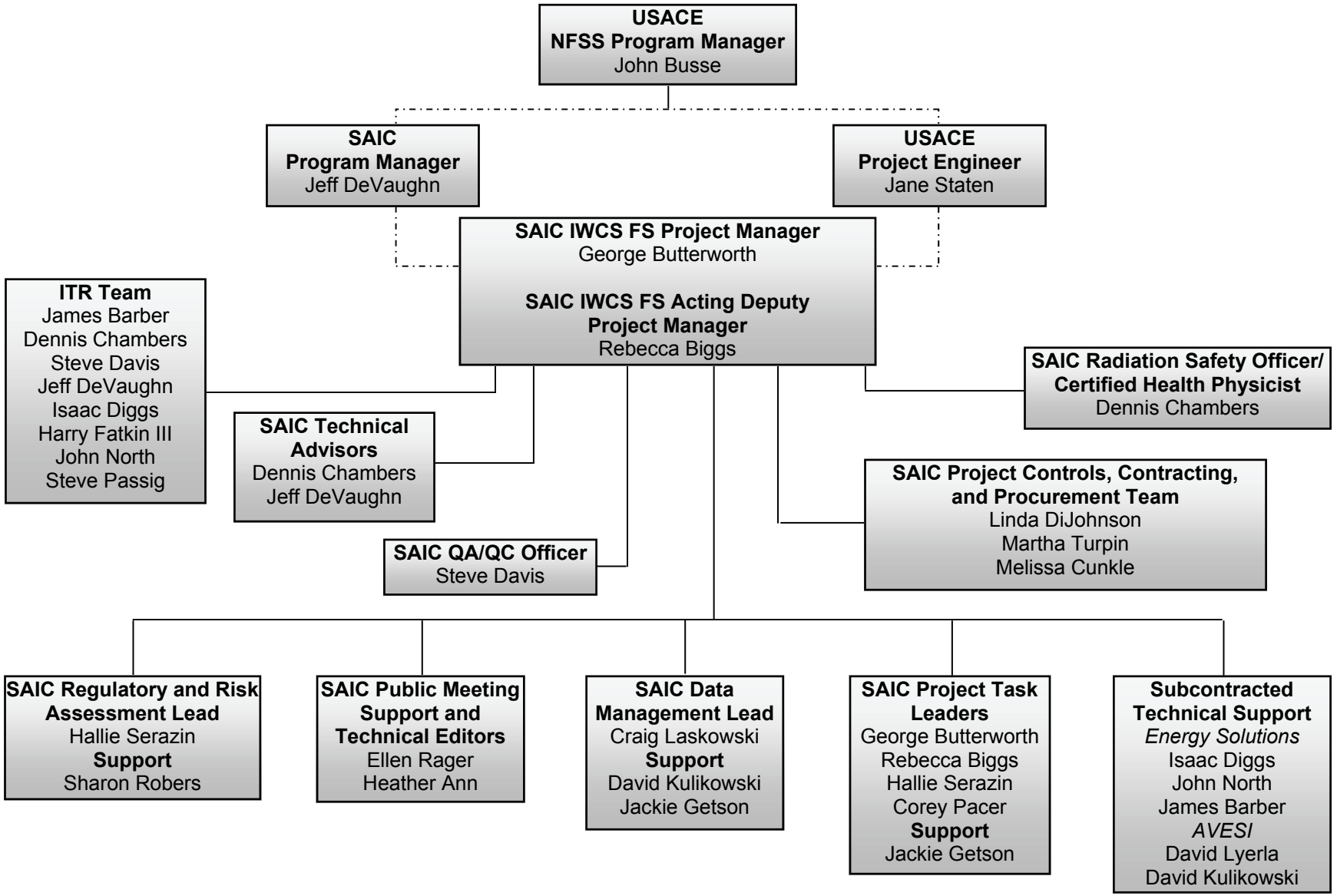

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Figure 2.2
CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

Item	Technical Concerns	Possible Impact	Resolution

As noted above, all concerns resulting from independent technical review of the project have been considered.

_____ _____

(Signature) (Date)

(Study/Design Task Manager)

Figure 2.3
STATEMENT OF INDEPENDENT TECHNICAL REVIEW

SAIC has completed the (task).

Notice is hereby given that an ITR has been conducted on the [task], as defined in the preceding paragraph, and is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the ITR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy.

_____ _____

(Signature) (Date)
Study/Design Team Leader or Task Manager

_____ _____

(Signature) (Date)
Independent Technical Review

Figure 2.4
SAIC Document Review Record

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

DOCUMENT REVIEW RECORD

DOCUMENT PREPARER:
DOCUMENT TITLE:

DOCUMENT NUMBER:

REVISION:

DATE TRANSMITTED:

REVIEW TYPE: ~ TECHNICAL ~ EDITORIAL

COMMENTS THAT ARE ANNOTATED WITH AN (*) ARE MANDATORY AND REQUIRE RESPONSE AND RESOLUTION

PAGE OR SECTION/ PARAGRAPH	REVIEWER COMMENTS	PREPARER RESPONSE	REVIEWER ACCEPT/ REJECT

REVIEWED BY:

_____

PRINT NAME

_____ _____

SIGNATURE DATE

RESPONSE BY:

_____

PRINT NAME

_____ _____

SIGNATURE DATE

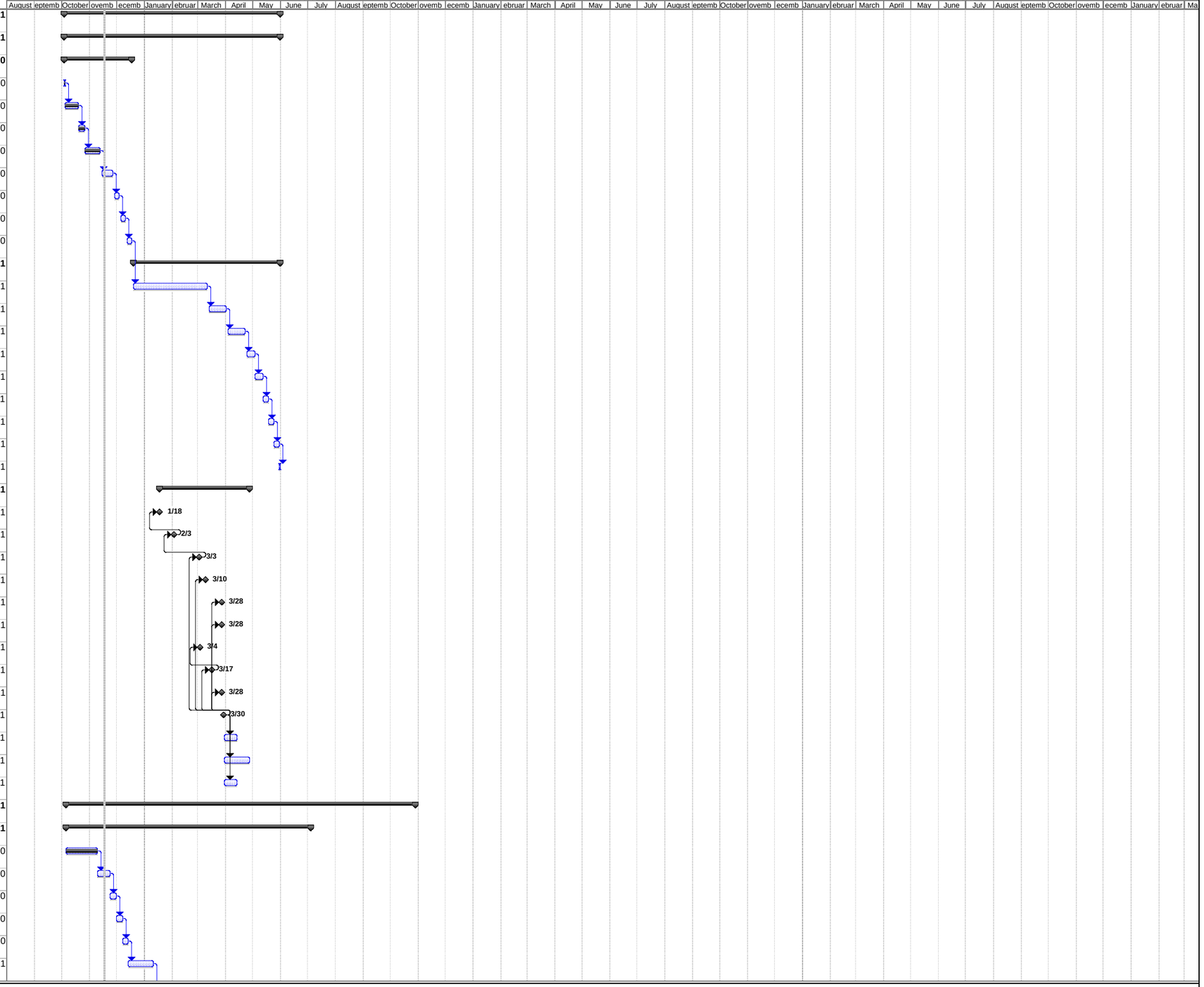
Instructions for Completion of the Document Review Record (DRR)

COMPLETE THIS FORM USING BLACK INK ONLY

Document Preparer:	Enter the name of the document preparer.
Document Title:	Enter document title, if applicable.
Sheet __ of __:	Enter the number of document review record sheets.
Document Number:	Enter the document number, if applicable.
Revision:	Enter the revision number, if applicable.
Date Transmitted:	Enter the date (MM/DD/YY) the record was sent out for review.
Date Comments Required:	Enter the date (MM/DD/YY) comments are due back.
Review Type:	Technical or Editorial
Page or Section/Paragraph:	Identify the page pr section/paragraph
Reviewer Comments:	The reviewer writes legibly or types each comment on the DRR. When a reviewer identifies a significant conflict with or deviation from policy, technical requirements, or scientific fact, this is considered a mandatory comment and must be identified by an asterisk. If no comments exist, the reviewer enters “No Comments”.
Reviewed By:	Reviewer prints his/her name, and signs and dates the form.
Preparer Response:	The proposed resolution of nonmandatory comments may be Documented by the preparer. Resolution of mandatory comments must be documented by the preparer.
Response By:	Preparer prints his/her name, and signs and dates the form.
Reviewer Accept/Reject:	Reviewer indicates agreement/rejection with the resolution of Mandatory comments by writing accept/reject and initialing

Figure 2.5: NFSS Project Schedule

ID	Task Name	Duration	Start	Finish
1	**RIR Addendum Delivery Order Tasks (W912QR-08-D-0008-DN02)**	**172 days**	**Mon 10/4/10**	**Tue 5/31/11**
2	**Task 1 RIR Addendum**	**172 days**	**Mon 10/4/10**	**Tue 5/31/11**
3	**RI Addendum Preparation**	**55 days**	**Mon 10/4/10**	**Fri 12/17/10**
4	Receive CX/LRD/HQ Comments on Draft R2	1 day	Mon 10/4/10	Mon 10/4/10
5	Draft R2 Comment Responses	11 days	Tue 10/5/10	Tue 10/19/10
6	USACE Review and Approval of Responses	5 days	Wed 10/20/10	Tue 10/26/10
7	Prepare and submit to USACE for Approval Final Version of RIR Addendum (	13 days	Wed 10/27/10	Fri 11/12/10
8	USACE Approves Release of R3 Version	10 days	Mon 11/15/10	Fri 11/26/10
9	RIR Addendum Fact Sheet (R1)	5 days	Mon 11/29/10	Fri 12/3/10
10	Fact Sheet Comment Responses	5 days	Mon 12/6/10	Fri 12/10/10
11	RIR Addendum Fact Sheet (R2)	5 days	Mon 12/13/10	Fri 12/17/10
12	**RI Addendum Public Comments**	**117 days**	**Mon 12/20/10**	**Tue 5/31/11**
13	Receipt of All Public Comments	60 days	Mon 12/20/10	Fri 3/11/11
14	Public Response Matrix for LRB Review	15 days	Mon 3/14/11	Fri 4/1/11
15	LRB Review	15 days	Mon 4/4/11	Fri 4/22/11
16	Response to LRB Comments	7 days	Mon 4/25/11	Tue 5/3/11
17	LRB Acceptance of Responses	7 days	Wed 5/4/11	Thu 5/12/11
18	Revise Public Response Matrix and Provide to LRB for Approval	4 days	Fri 5/13/11	Wed 5/18/11
19	LRB Review and Approval of Public Response Matrix	4 days	Thu 5/19/11	Tue 5/24/11
20	Finalize Public Response Matrix	4 days	Wed 5/25/11	Mon 5/30/11
21	Release Public Response Matrix	1 day	Tue 5/31/11	Tue 5/31/11
22	**Task 2 Public Workshop Session #1**	**72 days**	**Tue 1/18/11**	**Wed 4/27/11**
23	Draft Outline Presentation/Preliminary Draft Posters #1	1 day	Tue 1/18/11	Tue 1/18/11
24	Scoping Meeting #1	1 day	Thu 2/3/11	Thu 2/3/11
25	Draft Posters	1 day	Thu 3/3/11	Thu 3/3/11
26	Final Posters	1 day	Thu 3/10/11	Thu 3/10/11
27	Submit Fact Sheets	1 day	Mon 3/28/11	Mon 3/28/11
28	Comment Cards	1 day	Mon 3/28/11	Mon 3/28/11
29	Draft Presentation	1 day	Fri 3/4/11	Fri 3/4/11
30	Dry Run	1 day	Thu 3/17/11	Thu 3/17/11
31	Final Presentation	1 day	Mon 3/28/11	Mon 3/28/11
32	Attend Public Workshop Session #1	1 day	Wed 3/30/11	Wed 3/30/11
33	Transcripts	10 days	Thu 3/31/11	Wed 4/13/11
34	Responsiveness Summary	20 days	Thu 3/31/11	Wed 4/27/11
35	FAQ Database	10 days	Thu 3/31/11	Wed 4/13/11
36	**FS Planning Delivery Order Tasks (W912QR-08-D-0008-DN01)**	**278 days**	**Wed 10/6/10**	**Fri 10/28/11**
37	**Radon Assessment Technical Memorandum**	**194 days**	**Wed 10/6/10**	**Mon 7/4/11**
38	Develop and Issue Draft TM (R1) to LRB	25 days	Wed 10/6/10	Tue 11/9/10
39	LRB Review	10 days	Wed 11/10/10	Tue 11/23/10
40	Address LRB Comments and Incorporate into TM (R2)	5 days	Wed 11/24/10	Tue 11/30/10
41	LRB Review of Responses	5 days	Wed 12/1/10	Tue 12/7/10
42	Finalize LRB Responses into TM (R2)	4 days	Wed 12/8/10	Mon 12/13/10
43	CX/LRD/HQ Review of TM (R2)	20 days	Tue 12/14/10	Mon 1/10/11

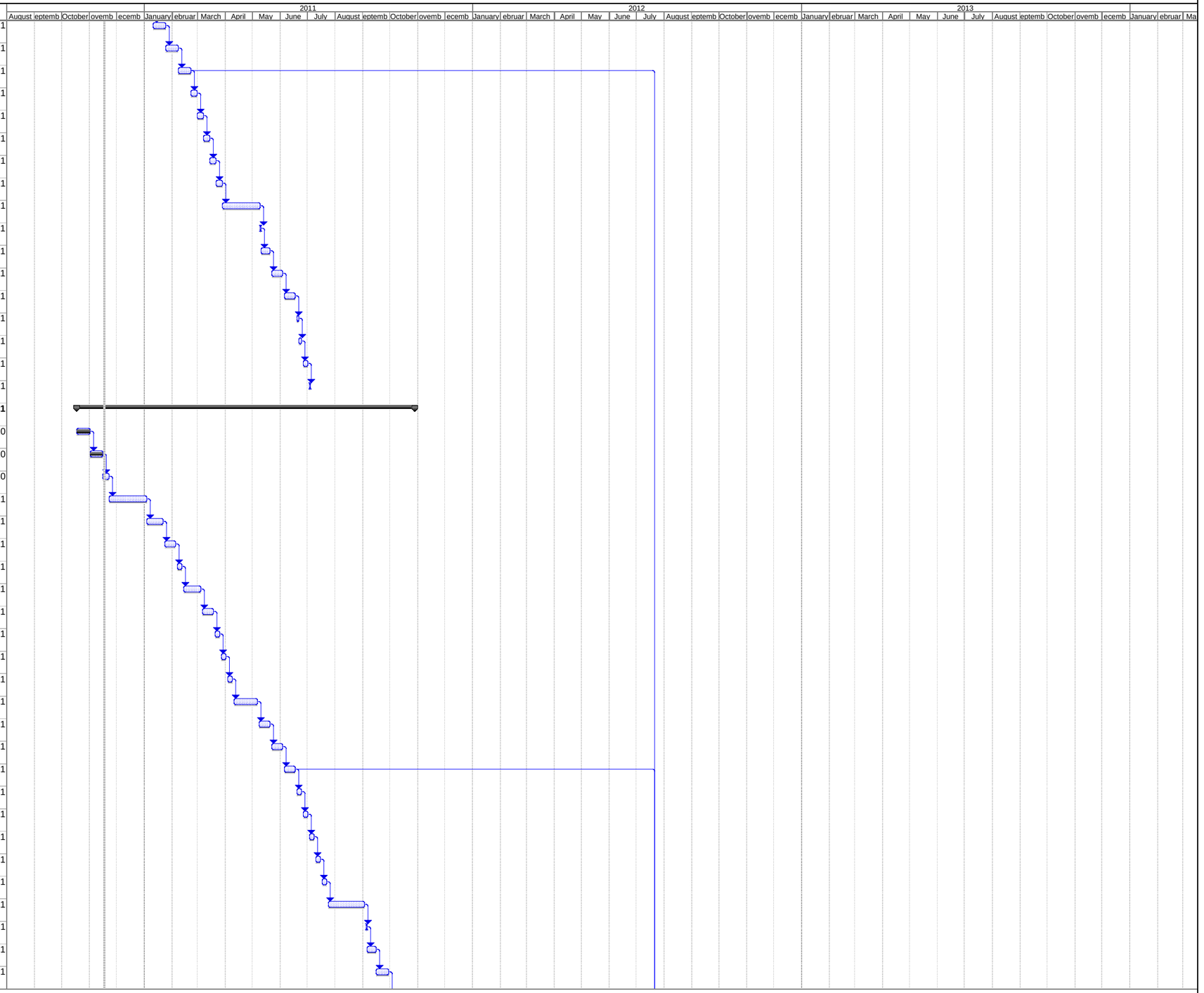


Project: NFSS Project Schedule 10-13
Date: Wed 11/17/10

Task | Progress | Milestone | Summary | Project Summary

Figure 2.5: NFSS Project Schedule

ID	Task Name	Duration	Start	Finish
44	Address CX/LRD/HQ Comments and Incorporate into TM (R3)	10 days	Tue 1/11/11	Mon 1/24/11
45	USACE Review and Approval of Responses	10 days	Tue 1/25/11	Mon 2/7/11
46	Finalize TM (R3)	10 days	Tue 2/8/11	Mon 2/21/11
47	Issue Draft Fact Sheet #2 for LRB Review	5 days	Tue 2/22/11	Mon 2/28/11
48	LRB Review	5 days	Tue 3/1/11	Mon 3/7/11
49	Address LRB Comments and Incorporate into Fact Sheet #2	5 days	Tue 3/8/11	Mon 3/14/11
50	LRB Review and approval of Responses	5 days	Tue 3/15/11	Mon 3/21/11
51	Revise/Finalize Fact Sheet #2	5 days	Tue 3/22/11	Mon 3/28/11
52	Public Review	30 days	Tue 3/29/11	Mon 5/9/11
53	Receipt of All Public Comments from USACE	1 day	Tue 5/10/11	Tue 5/10/11
54	Respond to Public Comments on TM	8 days	Wed 5/11/11	Fri 5/20/11
55	LRB Review of Responses to Public Comments	10 days	Mon 5/23/11	Fri 6/3/11
56	Address LRB Comments and Incorporate into Response to Comment Document	10 days	Mon 6/6/11	Fri 6/17/11
57	LRB Review and Approval of Responses to LRB Comments	2 days	Mon 6/20/11	Tue 6/21/11
58	Finalize LRB Responses into Response to Comment Document (R3)	3 days	Wed 6/22/11	Fri 6/24/11
59	Finalize and Release Response to Comment Document	5 days	Mon 6/27/11	Fri 7/1/11
60	Determine if Revision to TM R3 is necessary	1 day	Mon 7/4/11	Mon 7/4/11
61	**Waste Disposal Options & Fernald Lessons Learned Technical Memorandum**	**270 days**	**Mon 10/18/10**	**Fri 10/28/11**
62	Prepare and Issue Fact Sheet #1	11 days	Mon 10/18/10	Mon 11/1/10
63	Address LRB Comments and Incoporate into Fact Sheet #1	10 days	Tue 11/2/10	Mon 11/15/10
64	Finalize LRB Comment Responses in Fact Sheet #1	5 days	Tue 11/16/10	Mon 11/22/10
65	Public Review of Fact Sheet #1	30 days	Tue 11/23/10	Mon 1/3/11
66	Issue Responses to Public Comments on Fact Sheet #1 to LRB	14 days	Tue 1/4/11	Fri 1/21/11
67	Address LRB Comments on Response to Public Comments on Fact Sheet #1	10 days	Mon 1/24/11	Fri 2/4/11
68	Finalize Responses and Issue Fact Sheet #1	5 days	Mon 2/7/11	Fri 2/11/11
69	Issue Draft TM (R1) to LRB	15 days	Mon 2/14/11	Fri 3/4/11
70	LRB Review	10 days	Mon 3/7/11	Fri 3/18/11
71	Address LRB Comments and Incorporate into TM (R2)	5 days	Mon 3/21/11	Fri 3/25/11
72	LRB Review of Responses	5 days	Mon 3/28/11	Fri 4/1/11
73	Finalize LRB Responses into TM (R2)	5 days	Mon 4/4/11	Fri 4/8/11
74	CX/LRD/HQ Review of TM (R2)	20 days	Mon 4/11/11	Fri 5/6/11
75	Address CX/LRD/HQ Comments and Incorporate into TM (R3)	10 days	Mon 5/9/11	Fri 5/20/11
76	USACE Review and Approval of Responses	10 days	Mon 5/23/11	Fri 6/3/11
77	Finalize TM (R3)	10 days	Mon 6/6/11	Fri 6/17/11
78	Issue Draft Fact Sheet #2 for LRB Review	5 days	Mon 6/20/11	Fri 6/24/11
79	LRB Review	5 days	Mon 6/27/11	Fri 7/1/11
80	Address LRB Comments and Incorporate into Fact Sheet #2	5 days	Mon 7/4/11	Fri 7/8/11
81	LRB Review and approval of Responses	5 days	Mon 7/11/11	Fri 7/15/11
82	Revise/Finalize Fact Sheet #2	5 days	Mon 7/18/11	Fri 7/22/11
83	Public Review	30 days	Mon 7/25/11	Fri 9/2/11
84	Receipt of All Public Comments from USACE	1 day	Mon 9/5/11	Mon 9/5/11
85	Respond to Public Comments on TM	8 days	Tue 9/6/11	Thu 9/15/11
86	LRB Review of Responses to Public Comments	10 days	Fri 9/16/11	Thu 9/29/11



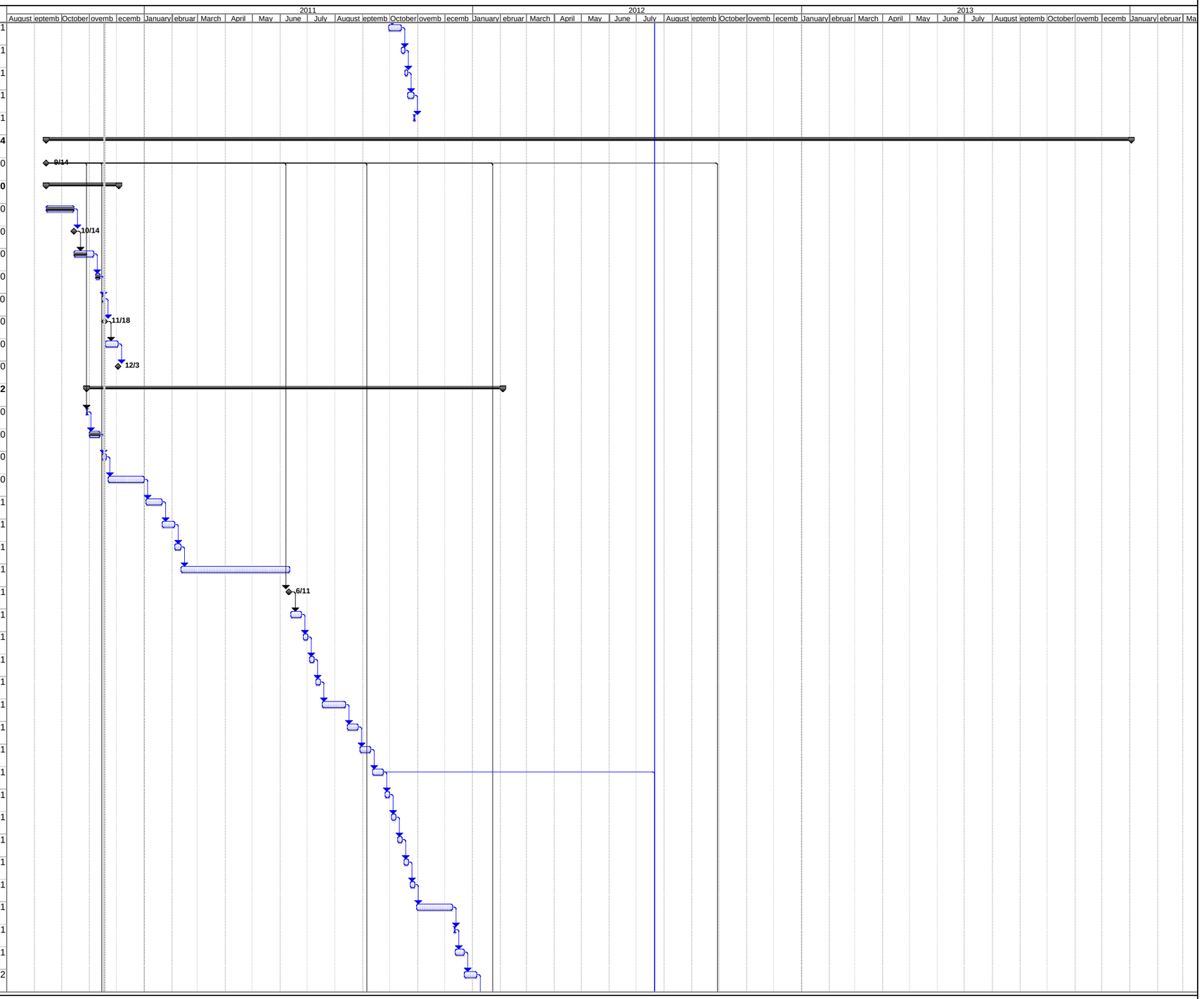
Project: NFSS Project Schedule 10-13
Date: Wed 11/17/10

Task | Progress | Milestone | Summary | Project Summary

Updated Wed 11/17/10

Figure 2.5: NFSS Project Schedule

ID	Task Name	Duration	Start	Finish
87	Address LRB Comments and Incorporate into Response to Comment Document	10 days	Fri 9/30/11	Thu 10/13/11
88	LRB Review and Approval of Responses to LRB Comments	2 days	Fri 10/14/11	Mon 10/17/11
89	Finalize LRB Responses into Response to Comment Document (R3)	3 days	Tue 10/18/11	Thu 10/20/11
90	Finalize and Release Response to Comment Document	5 days	Fri 10/21/11	Thu 10/27/11
91	Determine if Revision to TM R3 is necessary	1 day	Fri 10/28/11	Fri 10/28/11
92	**IWCS FS Delivery Order Tasks (W912P4-10-D-0007 Delivery Order 0001)**	**863 days**	**Tue 9/14/10**	**Thu 1/2/14**
93	**Notice to Proceed**	0 days	Tue 9/14/10	Tue 9/14/10
94	**Task 1. FS Quality Control Plan Addendum, ITR Review Plan and Project Sched**	**59 days**	**Tue 9/14/10**	**Fri 12/3/10**
95	Prepare Draft QCP Addendum	23 days	Tue 9/14/10	Thu 10/14/10
96	Submit Draft QCP Addendum (Include Overall NFSS Project Schedule)	0 days	Thu 10/14/10	Thu 10/14/10
97	USACE-LRB Review	16 days	Fri 10/15/10	Fri 11/5/10
98	Respond to LRB Comments	5 days	Mon 11/8/10	Fri 11/12/10
99	Prepare QCP Addendum	3 days	Mon 11/15/10	Wed 11/17/10
100	Submit QCP Addendum	1 day	Thu 11/18/10	Thu 11/18/10
101	Prepare Revised QCP Addendum	10 days	Fri 11/19/10	Thu 12/2/10
102	Submit Revised QCP Addendum	1 day	Fri 12/3/10	Fri 12/3/10
103	**Task 2A: RAOs and ARARs for both the IWCS and BOP OUs Technical Memora**	**331 days**	**Fri 10/29/10**	**Fri 2/3/12**
104	Issue Fact Sheet #1	1 day	Fri 10/29/10	Fri 10/29/10
105	Address LRB Comments and Incoporate into Fact Sheet #1	10 days	Mon 11/1/10	Fri 11/12/10
106	Finalize LRB Comment Responses in Fact Sheet #1	5 days	Mon 11/15/10	Fri 11/19/10
107	Public Review of Fact Sheet #1	30 days	Mon 11/22/10	Fri 12/31/10
108	Issue Responses to Public Comments on Fact Sheet #1 to LRB	14 days	Mon 1/3/11	Thu 1/20/11
109	Address LRB Comments on Response to Public Comments on Fact Sheet #1	10 days	Fri 1/21/11	Thu 2/3/11
110	Finalize Responses and Issue Fact Sheet #1	5 days	Fri 2/4/11	Thu 2/10/11
111	Prepare Draft TM (R1)	121 edays	Thu 2/10/11	Sat 6/11/11
112	Issue Draft TM (R1) to LRB	0 days	Sat 6/11/11	Sat 6/11/11
113	LRB Review	10 days	Mon 6/13/11	Fri 6/24/11
114	Address LRB Comments and Incorporate into TM (R2)	5 days	Mon 6/27/11	Fri 7/1/11
115	LRB Review of Responses	5 days	Mon 7/4/11	Fri 7/8/11
116	Finalize LRB Responses into TM (R2)	5 days	Mon 7/11/11	Fri 7/15/11
117	CX/LRD/HQ Review of TM (R2)	20 days	Mon 7/18/11	Fri 8/12/11
118	Address CX/LRD/HQ Comments and Incorporate into TM (R3)	10 days	Mon 8/15/11	Fri 8/26/11
119	USACE Review and Approval of Responses	10 days	Mon 8/29/11	Fri 9/9/11
120	Finalize TM (R3)	10 days	Mon 9/12/11	Fri 9/23/11
121	Issue Draft Fact Sheet #2 for LRB Review	5 days	Mon 9/26/11	Fri 9/30/11
122	LRB Review	5 days	Mon 10/3/11	Fri 10/7/11
123	Address LRB Comments and Incorporate into Fact Sheet #2	5 days	Mon 10/10/11	Fri 10/14/11
124	LRB Review and approval of Responses	5 days	Mon 10/17/11	Fri 10/21/11
125	Revise/Finalize Fact Sheet #2	5 days	Mon 10/24/11	Fri 10/28/11
126	Public Review	30 days	Mon 10/31/11	Fri 12/9/11
127	Receipt of All Public Comments from USACE	1 day	Mon 12/12/11	Mon 12/12/11
128	Respond to Public Comments on TM	8 days	Tue 12/13/11	Thu 12/22/11
129	LRB Review of Responses to Public Comments	10 days	Fri 12/23/11	Thu 1/5/12

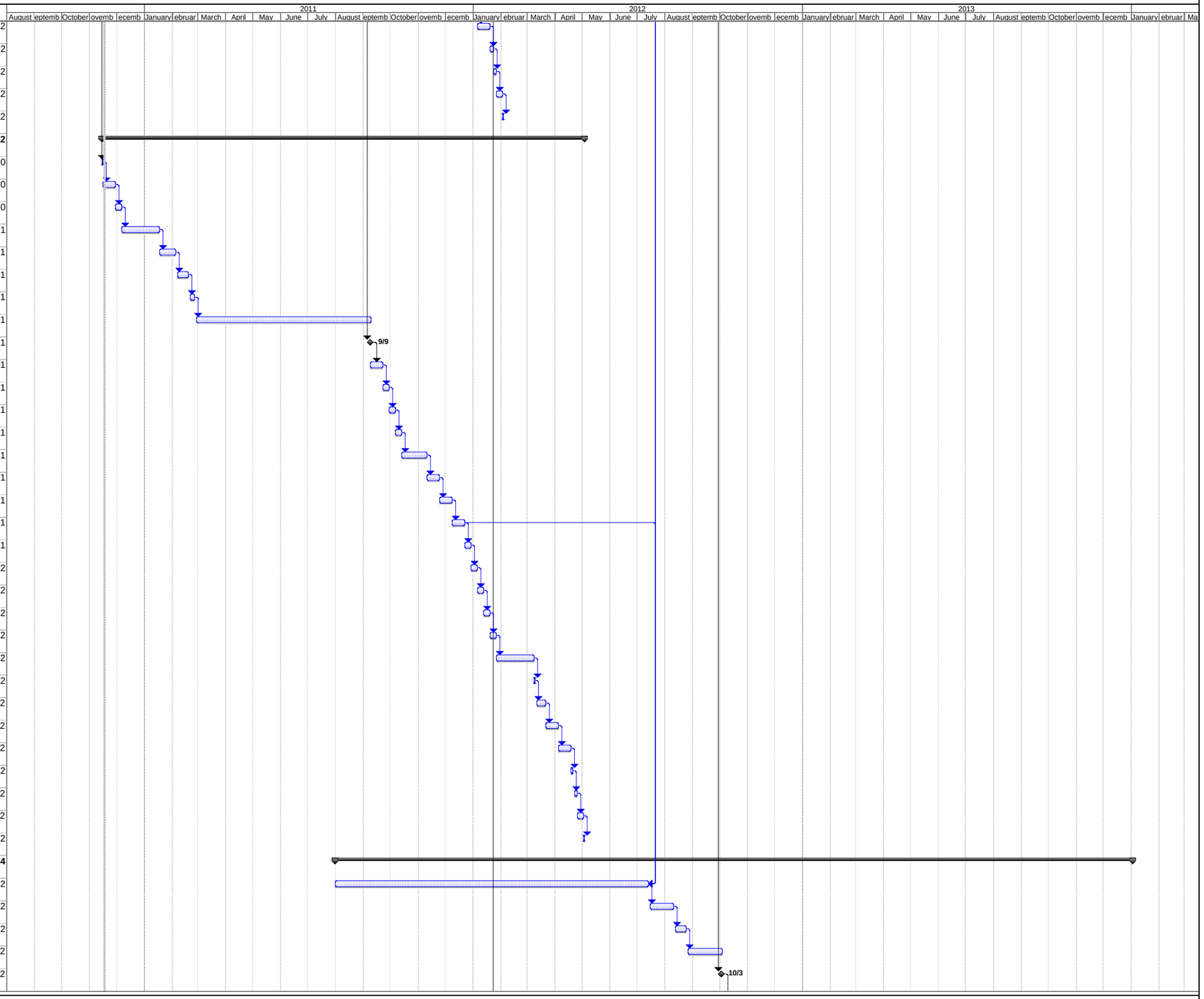


Project: NFSS Project Schedule 10-13
Date: Wed 11/17/10

Task | Progress | Milestone | Summary | Project Summary

Figure 2.5: NFSS Project Schedule

ID	Task Name	Duration	Start	Finish
130	Address LRB Comments and Incorporate into Response to Comment Document	10 days	Fri 1/6/12	Thu 1/19/12
131	LRB Review and Approval of Responses to LRB Comments	2 days	Fri 1/20/12	Mon 1/23/12
132	Finalize LRB Responses into Response to Comment Document (R3)	3 days	Tue 1/24/12	Thu 1/26/12
133	Finalize and Release Response to Comment Document	5 days	Fri 1/27/12	Thu 2/2/12
134	Determine if Revision to TM R3 is necessary	1 day	Fri 2/3/12	Fri 2/3/12
135	**Task 2B: IWCS Remedial Alternatives Technologies Development and Screenin**	**384 days**	**Mon 11/15/10**	**Thu 5/3/12**
136	Issue Fact Sheet #1	1 day	Mon 11/15/10	Mon 11/15/10
137	Address LRB Comments and Incoporate into Fact Sheet #1	10 days	Tue 11/16/10	Mon 11/29/10
138	Finalize LRB Comment Responses in Fact Sheet #1	5 days	Tue 11/30/10	Mon 12/6/10
139	Public Review of Fact Sheet #1	30 days	Tue 12/7/10	Mon 1/17/11
140	Issue Responses to Public Comments on Fact Sheet #1 to LRB	14 days	Tue 1/18/11	Fri 2/4/11
141	Address LRB Comments on Response to Public Comments on Fact Sheet #1	10 days	Mon 2/7/11	Fri 2/18/11
142	Finalize Responses and Issue Fact Sheet #1	5 days	Mon 2/21/11	Fri 2/25/11
143	Prepare Draft TM (R1)	28 wks	Mon 2/28/11	Fri 9/9/11
144	Issue Draft TM (R1) to LRB	0 days	Fri 9/9/11	Fri 9/9/11
145	LRB Review	10 days	Fri 9/9/11	Thu 9/22/11
146	Address LRB Comments and Incorporate into TM (R2)	5 days	Fri 9/23/11	Thu 9/29/11
147	LRB Review of Responses	5 days	Fri 9/30/11	Thu 10/6/11
148	Finalize LRB Responses into TM (R2)	5 days	Fri 10/7/11	Thu 10/13/11
149	CX/LRD/HQ Review of TM (R2)	20 days	Fri 10/14/11	Thu 11/10/11
150	Address CX/LRD/HQ Comments and Incorporate into TM (R3)	10 days	Fri 11/11/11	Thu 11/24/11
151	USACE Review and Approval of Responses	10 days	Fri 11/25/11	Thu 12/8/11
152	Finalize TM (R3)	10 days	Fri 12/9/11	Thu 12/22/11
153	Issue Draft Fact Sheet #2 for LRB Review	5 days	Fri 12/23/11	Thu 12/29/11
154	LRB Review	5 days	Fri 12/30/11	Thu 1/5/12
155	Address LRB Comments and Incorporate into Fact Sheet #2	5 days	Fri 1/6/12	Thu 1/12/12
156	LRB Review and approval of Responses	5 days	Fri 1/13/12	Thu 1/19/12
157	Revise/Finalize Fact Sheet #2	5 days	Fri 1/20/12	Thu 1/26/12
158	Public Review	30 days	Fri 1/27/12	Thu 3/8/12
159	Receipt of All Public Comments from USACE	1 day	Fri 3/9/12	Fri 3/9/12
160	Respond to Public Comments on TM	8 days	Mon 3/12/12	Wed 3/21/12
161	LRB Review of Responses to Public Comments	10 days	Thu 3/22/12	Wed 4/4/12
162	Address LRB Comments and Incorporate into Response to Comment Document	10 days	Thu 4/5/12	Wed 4/18/12
163	LRB Review and Approval of Responses to LRB Comments	2 days	Thu 4/19/12	Fri 4/20/12
164	Finalize LRB Responses into Response to Comment Document (R3)	3 days	Mon 4/23/12	Wed 4/25/12
165	Finalize and Release Response to Comment Document	5 days	Thu 4/26/12	Wed 5/2/12
166	Determine if Revision to TM R3 is necessary	1 day	Thu 5/3/12	Thu 5/3/12
167	**Task 3. Feasibility Study Report**	**634 days**	**Mon 8/1/11**	**Thu 1/2/14**
168	Generate Draft FS Report (Internal Review Draft)	250 days	Mon 8/1/11	Fri 7/13/12
169	ITR of FS Report	20 days	Mon 7/16/12	Fri 8/10/12
170	Respond to ITR Comments	10 days	Mon 8/13/12	Fri 8/24/12
171	Finalize Draft FS Report (R1)	28 days	Mon 8/27/12	Wed 10/3/12
172	Submit Draft FS Report (R1) to USACE	0 days	Wed 10/3/12	Wed 10/3/12

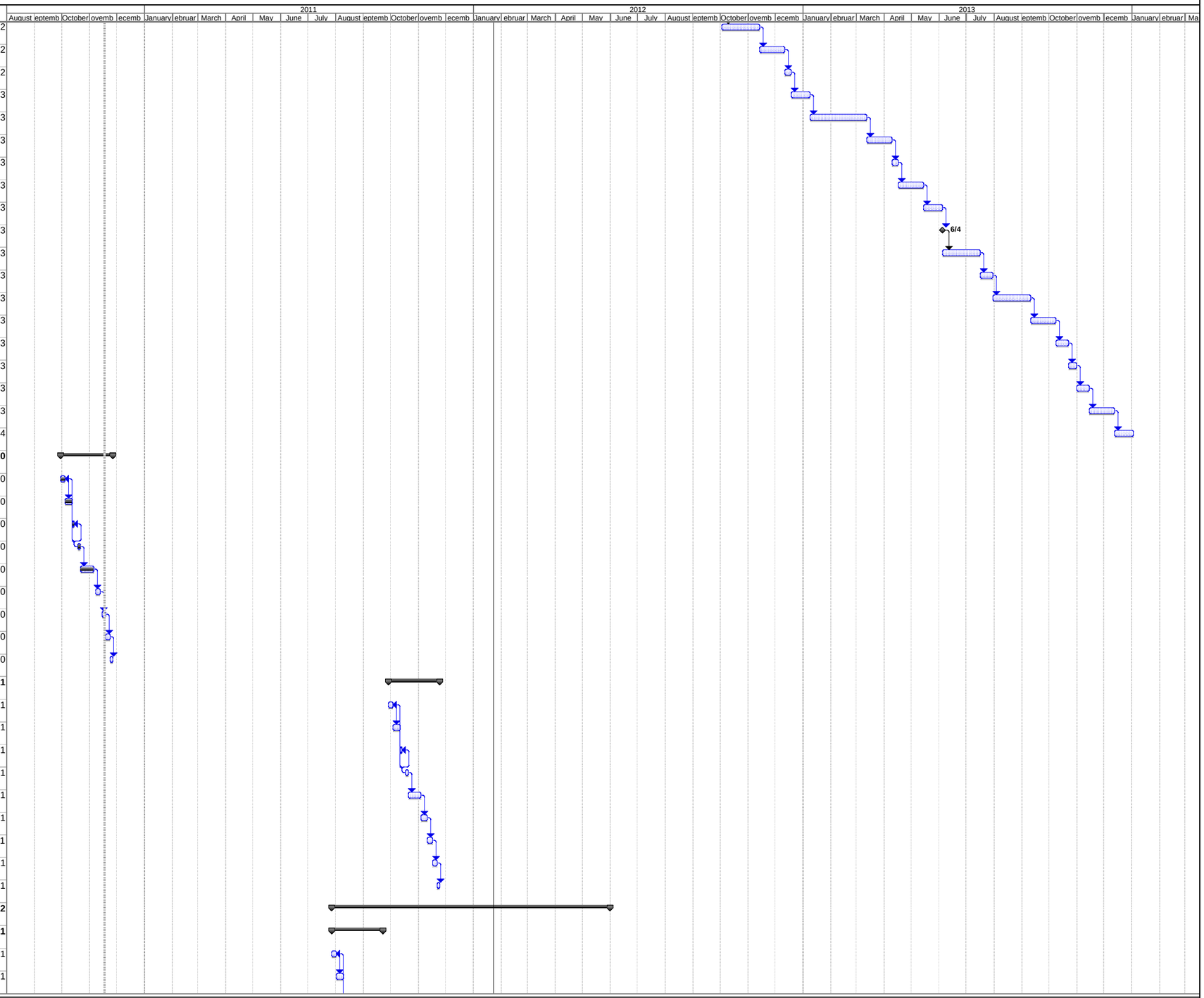


Project: NFSS Project Schedule 10-13
Date: Wed 11/17/10

Task | Progress | Milestone | Summary | Project Summary

Figure 2.5: NFSS Project Schedule

ID	Task Name	Duration	Start	Finish
173	USACE-LRB Review	30 days	Wed 10/3/12	Tue 11/13/12
174	Prepare Comment Responses	20 days	Wed 11/14/12	Tue 12/11/12
175	USACE Review/Approval of Comment Responses	5 days	Wed 12/12/12	Tue 12/18/12
176	Revise FS Report (R2) and Submit for CX/LRD/HQ Review	15 days	Wed 12/19/12	Tue 1/8/13
177	USACE CX/LRD/HQ Review	45 days	Wed 1/9/13	Tue 3/12/13
178	Prepare Comment Responses	20 days	Wed 3/13/13	Tue 4/9/13
179	USACE Review/Approval of Comment Responses	5 days	Wed 4/10/13	Tue 4/16/13
180	Revise FS Report (R3) for USACE Review and Approval	20 days	Wed 4/17/13	Tue 5/14/13
181	USACE Review and Approval	15 days	Wed 5/15/13	Tue 6/4/13
182	IWCS FS Final Document for Public Release	0 days	Tue 6/4/13	Tue 6/4/13
183	Public Review	30 days	Wed 6/5/13	Tue 7/16/13
184	Receive all Public Comments From USACE	10 days	Wed 7/17/13	Tue 7/30/13
185	Prepare Comment Responses	30 days	Wed 7/31/13	Tue 9/10/13
186	USACE Review of Responses to Public Comments	20 days	Wed 9/11/13	Tue 10/8/13
187	Respond to USACE Comments	10 days	Wed 10/9/13	Tue 10/22/13
188	USACE Review of Responses to USACE Comments	7 days	Wed 10/23/13	Thu 10/31/13
189	Finalize Responses to Public Comments and and Submit to USACE	10 days	Fri 11/1/13	Thu 11/14/13
190	Release Responses to Public Comments on the IWCS FS	20 days	Fri 11/15/13	Thu 12/12/13
191	USACE Determination on Whether the FS Needs to be Revised	15 days	Fri 12/13/13	Thu 1/2/14
192	**Task 7A: NFSS Project Planning Meeting**	**42 days**	**Thu 9/30/10**	**Fri 11/26/10**
193	Prepare Draft Agenda and Submit to USACE	3 days	Thu 9/30/10	Tue 10/5/10
194	USACE Review of Agenda	6 days	Tue 10/5/10	Tue 10/12/10
195	Prepare Final Agenda	2 days	Wed 10/13/10	Fri 10/15/10
196	Conduct Project Planning Meeting	3 days	Tue 10/19/10	Thu 10/21/10
197	Prepare draft minutes of the meeting	11 days	Fri 10/22/10	Fri 11/5/10
198	USACE review of minutes	5 days	Mon 11/8/10	Fri 11/12/10
199	Prepare responses to USACE comments	4 days	Mon 11/15/10	Thu 11/18/10
200	USACE review of responses	3 days	Fri 11/19/10	Tue 11/23/10
201	Finalize meeting minutes	3 days	Wed 11/24/10	Fri 11/26/10
202	**Task 7B: NFSS Project Planning Meeting**	**41 days**	**Thu 9/29/11**	**Thu 11/24/11**
203	Prepare Draft Agenda and Submit to USACE	3 days	Thu 9/29/11	Tue 10/4/11
204	USACE Review of Agenda	6 days	Tue 10/4/11	Tue 10/11/11
205	Prepare Final Agenda	2 days	Wed 10/12/11	Fri 10/14/11
206	Conduct Project Planning Meeting	3 days	Tue 10/18/11	Thu 10/20/11
207	Prepare draft minutes of the meeting	10 days	Fri 10/21/11	Thu 11/3/11
208	USACE review of minutes	5 days	Fri 11/4/11	Thu 11/10/11
209	Prepare responses to USACE comments	4 days	Fri 11/11/11	Wed 11/16/11
210	USACE review of responses	3 days	Thu 11/17/11	Mon 11/21/11
211	Finalize meeting minutes	3 days	Tue 11/22/11	Thu 11/24/11
212	**Task 10: IWCS Operation, Maintenance, and Monitoring Plan (OMMP)**	**221 days**	**Thu 7/28/11**	**Thu 5/31/12**
213	**Task 10A: Project Meeting**	**41 days**	**Thu 7/28/11**	**Thu 9/22/11**
214	Prepare Draft Agenda and Submit to USACE	3 days	Thu 7/28/11	Tue 8/2/11
215	USACE Review of Agenda	6 days	Tue 8/2/11	Tue 8/9/11

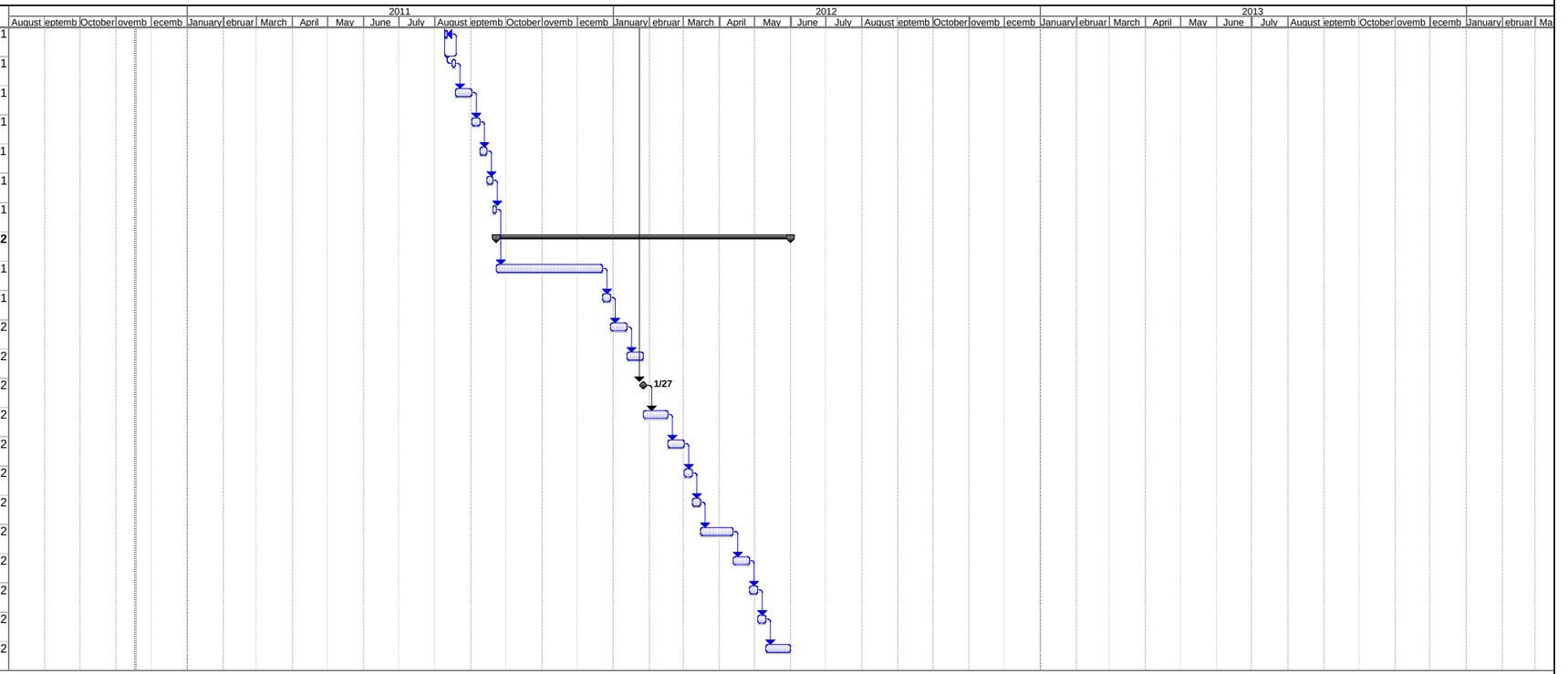


Project: NFSS Project Schedule 10-13
Date: Wed 11/17/10

Task | Progress | Milestone | Summary | Project Summary

Figure 2.5: NFSS Project Schedule

ID	Task Name	Duration	Start	Finish
216	Prepare Final Agenda	2 days	Wed 8/10/11	Fri 8/12/11
217	Conduct Project Meeting	3 days	Tue 8/16/11	Thu 8/18/11
218	Prepare draft minutes of the meeting	10 days	Fri 8/19/11	Thu 9/1/11
219	USACE review of minutes	5 days	Fri 9/2/11	Thu 9/8/11
220	Prepare responses to USACE comments	4 days	Fri 9/9/11	Wed 9/14/11
221	USACE review of responses	3 days	Thu 9/15/11	Mon 9/19/11
222	Finalize meeting minutes	3 days	Tue 9/20/11	Thu 9/22/11
223	**Task 10B: IWCS OMMP Development**	**180 days**	**Fri 9/23/11**	**Thu 5/31/12**
224	Generate Draft Report (Internal Review Draft)	65 days	Fri 9/23/11	Thu 12/22/11
225	ITR of Report	5 days	Fri 12/23/11	Thu 12/29/11
226	Respond to ITR Comments	10 days	Fri 12/30/11	Thu 1/12/12
227	Finalize Draft Report (R1)	10 days	Fri 1/13/12	Thu 1/26/12
228	Submit Draft Report (R1) to USACE	0 days	Fri 1/27/12	Fri 1/27/12
229	USACE-LRB Review	15 days	Fri 1/27/12	Thu 2/16/12
230	Prepare Comment Responses	10 days	Fri 2/17/12	Thu 3/1/12
231	USACE Review/Approval of Comment Responses	5 days	Fri 3/2/12	Thu 3/8/12
232	Revise Report (R2) and Submit for CX/LRD/HQ Review	5 days	Fri 3/9/12	Thu 3/15/12
233	USACE CX/LRD/HQ Review	20 days	Fri 3/16/12	Thu 4/12/12
234	Prepare Comment Responses	10 days	Fri 4/13/12	Thu 4/26/12
235	USACE Review/Approval of Comment Responses	5 days	Fri 4/27/12	Thu 5/3/12
236	Revise Report (R3) for USACE Review and Approval	5 days	Fri 5/4/12	Thu 5/10/12
237	USACE Review and Approval	15 days	Fri 5/11/12	Thu 5/31/12



Project: NFSS Project Schedule 10-13
Date: Wed 11/17/10

Task | Progress | Milestone | Summary | Project Summary

Attachment 1

Resumes

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SAIC Resumes

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JEFFREY A. DEVAUGHN, C.P.G.

SENIOR GEOLOGIST

RELEVANT SPECIALIZED EXPERIENCE

Mr. DeVaughn has participated in many types of environmental compliance and site characterization projects during the past 18 years.

EDUCATION

B.S., Geology, 1989

CERTIFICATIONS

Certified Professional Geologist #10692 (AIPG)

TRAINING

40-Hour OSHA Hazwoper

December 1991 to Present, Geologist, SAIC. Mr. DeVaughn has 18 years of experience in environmental characterization and restoration projects for the NASA, USACE, the U.S. Department of Energy (DOE) and other government and commercial facilities across the country. Specific areas of experience include: project management, field management, site characterization, and sampling for CERCLA and RCRA projects; preliminary assessment records research and review; site reconnaissance; extensive technical report writing and document preparation; analytical data management and review; computer graphics production and mapping; field sample and data management; subcontract and task management; project oversight; and site health & safety supervision.

Mr. DeVaughn is serving as the Remedial Investigation/Feasibility Study Project Manager for the Harshaw FUSRAP Site in Cleveland, Ohio. Responsibilities include financial management, coordination of and participation in RI project work plans and the development and implementation of planned field sampling, reporting, and technical support activities. Mr. DeVaughn also conducted FUSRAP file reviews and records searches during research activities at the National Archives and Records Administration and DOE Headquarters. The Harshaw FUSRAP site is administered by the U. S. Army Corps of Engineers (USACE) - Buffalo District. Mr. DeVaughn served a key role in the development of the chemical and radiological site characterization of the Harshaw site including soil, groundwater, surface water, sediment, and building radiation surveys. Mr. DeVaughn directed the specification, purchase, setup, and operation of an on-site gamma spectroscopy laboratory used during the two-year site investigation. Mr. DeVaughn also served in a key technical role for the development of an observational sampling program design consistent with the U.S. EPA Triad approach for dynamic site characterization strategies.

Mr. DeVaughn is currently serving as the Project Manager for the Former Rossford Army Depot Follow-On Closure Activities project located in Rossford, Ohio. The project includes the investigation of a former Burn Area, the Ohio BUSTR closure of two former petroleum USTs, and the abandonment of existing groundwater monitoring wells per Ohio groundwater technical guidance requirements. The Former Rossford Army Depot project is administered by the USACE - Louisville District. Mr. DeVaughn also provides USACE with technical and logistical support through coordination with Ohio BUSTR and Ohio EPA. Mr. DeVaughn led the site characterization design including the acquisition of historical aerial photographs used as part of a site-specific GIS system to direct and streamline the site characterization field sampling program for soil and groundwater associated with a former burn area and two former USTs.

Mr. DeVaughn has served as the Project Manager for Special Task 300.27 - Plum Brook Groundwater Treatment Systems Operation and Maintenance, a groundwater treatment system monitoring and sampling project at the National Aeronautics and Space Administration (NASA) Plum Brook Station in Sandusky, Ohio. Responsibilities include financial management, work plan and report development, and staff management and scheduling. Treatment system and groundwater monitoring well sampling is conducted to demonstrate compliance with NPDES and county permit requirements. SAIC has supported NASA on this task since 2004. Current project year activities include the performance of soil sampling and a human health risk assessment for each treatment system to evaluate current conditions, treatment system effectiveness, and the need for continued system operation.

Mr. DeVaughn served in a key technical role on Special Task 300.28 - Final Design and Site Characterization of FY04 Demolition Taylor Road Sewage Plant, as the field manager for the site characterization. Mr. DeVaughn led the development of the site characterization strategy and supervised field sampling and building material evaluations during implementation. Site characterization activities included the collection of soil, treatment system component sediment, and building material samples for asbestos and lead. Mr. DeVaughn also conducted field GIS mapping activities that allowed for the development of an accurate field work plan and characterization sampling approach.

Mr. DeVaughn also is serving in a key technical role on Special Task 300.54 - PBS Boilerhouse Demolition Design, as the lead planner for the site characterization activities to determine soil re-use and building material disposal requirements. Mr. DeVaughn conducted site reconnaissance activities and led the development of the site characterization approach for soil in compliance with NASA Environmental Programs Manual Chapter 23 - Handling, Reuse, and Disposal of Soil. Additional characterization activities include field screening and laboratory sample evaluations for the potential presence of asbestos, lead, and mercury associated with building materials.

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GEORGE E. BUTTERWORTH, III

SENIOR ENGINEER

RELEVANT SPECIALIZED EXPERIENCE

Mr. Butterworth has 35 years of work experience with over 20 years of experience in the management of environmental and waste management related activities at sites containing radiological, chemical, and mixed materials and waste. This experience has encompassed management of waste operations at U.S. Department of Energy (DOE) facilities, which included the handling, storage, treatment, and disposal of laboratory chemicals, radiological wastes, mixed wastes, hazardous waste (RCRA), PCB waste (TSCA), asbestos waste, and sanitary waste.

Other management responsibilities included development and implementation of low-level radioactive waste disposal alternatives as well as the development and publication of the necessary CERCLA documentation for the remediation of FUSRAP sites within the Buffalo District area of responsibility. CERCLA documentation addressed radiological, chemical, and mixed waste contaminants for these sites. These documentation efforts included technical memoranda regarding risks, volume estimates, and compliance with various regulations, work plans for conducting field investigations, feasibility studies, proposed plans and records of decision for various sites.

Mr. Butterworth has over 19 years of experience dealing with federal and state environmental regulatory agencies in Tennessee, New York and Ohio. Mr. Butterworth also has over 8 years experience in assessing radiological risks and other hazards associated with radioactive waste storage, decontamination of old underground radioactive waste storage tanks, radioactive grout injection facility, reactors, isotope chemical processing, and other waste management operating facilities.

EDUCATION

M.S., Nuclear Engineering, 1976

B.S., Mechanical Engineering, 1974

September 1996 to present, Senior Project Manager, SAIC. Responsible for the project management of tasks associated with the Niagara Falls Storage Site, Seaway Site, General Technical Support (including health physicist support), the Linde Site, the Bliss and Laughlin Site, and the Town of Tonawanda Landfill Site in the United States Army Corps of Engineers (USACE) Buffalo District Formerly Utilized Sites Remedial Action Program (FUSRAP) activities. Also currently provide technical support to the Harshaw Site (Ohio) and to the overall Buffalo District on an as-requested basis. Provided technical support to the Mt. Morris Site (New York) and the Luckey Site (Ohio) efforts. From October 1997 to October 1998, responsible for the overall program management of environmental service activities in support of the USACE FUSRAP, formerly with the Department of Energy (DOE), tasks within the scope of the Buffalo District of USACE. The remediation sites within the Buffalo District include Tonawanda Sites, New York, Niagara Falls Storage Site, New York, Bliss & Laughlin, New York, Painesville, Ohio, and Luckey, Ohio. These efforts involve environmental studies and compliance documentation for these sites, which would include but not be limited to, radiological guideline derivations, chemical and radiological hazard assessments, sampling and analysis plans, field sampling and analysis, wetland delineation studies and assessments, Engineering Evaluations/Cost Analysis (EE/CA). Proposed Plans, and Records of Decision. Principal interface between USACE and other SAIC technical task leaders regarding the environmental studies at these sites. Responsible for management of overall cost and schedules associated with USACE Buffalo District Sites of Seaway, Ashland 1, Ashland 2, Linde, Bliss & Laughlin, and Town of Tonawanda Landfill. Prior to USACE receiving responsibility from Congress for FUSRAP in October 1997, project management responsibilities also included the Colonie Site in New York.

May 1994 to September 1996, Manager, Compliance, Evaluations, and Policy, Lockheed Martin Energy Systems, Inc. Responsible for managing and providing leadership to a core of technical staff in the development, maintenance, and enhancements of the LMES Standards Management System, which includes key elements such as, the LMES Procedure Program, the Standards/Requirements Identification Document (S/RID) Program addressing Defense Nuclear Facilities Safety Board (DNFSB) Environment, Safety and Health (ES&H) concerns and recommendations, and interfacing with Contracts and DOE on establishing which DOE Orders and Directives to which LMES will comply. Main focus of the activities has been directed establishing effective and efficient processes for the identification, translation, and communication of ES&H requirements for specific work scopes and for addressing DNFSB issues. Personally supported DOE Headquarters Dr. Tara O'Toole, (EH-1) and the Department Standards Committee (DSC), for which she chairs. In support of the DSC, personally assigned to Standard Process Action Teams (SPATs) focused on ES&H requirements and standards-based management.

February 1991 to May 1994, Deputy Director, Waste Management Division, K-25 Site, Lockheed Martin Energy Systems, Inc. As the Deputy Director, Mr. Butterworth was responsible for managing the treatment, storage, and disposal (TSD) activities of all waste on the K-25 Site in Oak Ridge, TN, which included more than 50 radioactive and hazardous waste TSD facilities; operating in full compliance with all applicable federal, state, and local environmental, safety, and health regulations in a manner that protects the health and safety of on-site personnel, the public, and environment. Required knowledge of and commitment to ES&H issues, objectives, and requirements. Assumed all responsibilities of the Division Director as appropriate to maintain full and competent operation of a division with more than 160 employees (monthly, weekly, and hourly employees) and an annual operating budget in excess of $30M. Responsibilities included long-range planning and budgetary activities, Tiger Team Response Plan and Budget Integration, LDR Federal Facilities Compliance Agreement initiatives, self assessments, as well as day-to-day operational issues related to ES&H and mission. Also served as a major technical resource for the Site in taking the lead on developing and implementing strategies and specific action plans for high priority site issues and special projects as assigned by the Plant Manager (see attached for summary of special assignments).

December 1989 to February 1991, Manager, Environmental Management, K-25 Site, Lockheed Martin Energy Systems, Inc. Mr. Butterworth was responsible for establishing and managing the K-25 Site Environmental Management Program for the K-25 Site located in Oak Ridge, TN, which has diverse operations ranging from Gaseous Diffusion Plant Decontamination and Decommissioning, Environmental Restoration, Hazardous and Radioactive Waste Incinerator Operations, and numerous hazardous and radioactive waste generators, and waste management treatment, storage and disposal facilities. Responsibilities included developing the program and the staffing and budget needs to develop, implement and maintain the program as well as support operations. Supervised and led a staff of more than 20 highly skilled professionals and actively continued to recruit more to accomplish the program objectives. Required knowledge of and commitment to environmental issues, objectives, and requirements.

July 1987 to December 1989, Program Manager, Martin Marietta Energy Systems, Inc. Mr. Butterworth was responsible for the management of the DOE-ORO Low-Level Waste Disposal Development and Demonstration (LLWDDD) Program. The LLWDDD Program was responsible for the development and implementation of an innovative strategy for the disposal of low-level waste on the Oak Ridge Reservation in a manner that protects the environment, and the health and safety of the public and workers. This program consisted of five major elements which were managed by highly-skilled professionals, including Ph.D.'s, from various divisions throughout the Oak Ridge National Laboratory (ORNL). These elements were Systems Analysis and Development of Waste Acceptance Criteria; Database Development and Implementation; Waste Treatment, Storage, and Disposal Technologies Demonstrations; Environmental Impact Statement Support and Data Development; and New Facilities. Responsibilities included directing the task managers of the five major elements with respect to what the LLWDDD Program activities should be and the associated priorities of each, integrating the efforts of the five areas, and assuring that the necessary milestones and tasks were accomplished on schedule and to the customers expectations. Interfaced and interacted with the five Martin Marietta Energy Systems, Inc. (MMES) sites, the DOE-ORO, DOE-HQ, Environmental Protection Agency (EPA), the Tennessee Department of Health and Environment, the MMES Central Waste Management Office, and the National Low-Level Waste Program.

April 1986 to July 1987, Manager, Environmental Compliance, Westinghouse Materials Company of Ohio. Mr. Butterworth was responsible for monitoring and assessing the environmental impacts of operations and activities conducted at a uranium metal production facility located at Fernald, OH, to assure compliance with applicable environmental regulations (e.g., RCRA, TSCA, NESHAPS, NEPA, etc.) specified by the U.S. EPA and the Ohio Environmental Protection Agency (OEPA). Participated in technical negotiations with the State of Ohio and the DOE and with the U.S. EPA, Region V and the DOE. Responsible for the management of subcontractor activities for completion of a site-wide Remedial Investigation/Feasibility Study (RI/FS) to be conducted following CERCLA guideline documents and interfacing with the DOE regarding any issues related to the RI/FS efforts.

Supervised and directed a staff of 14 professionals and 2 secretaries necessary for maintaining and further enhancing the environmental monitoring program for the site, conducting needed environmental monitoring studies, investigating environmental anomalies, preparing and maintaining radionuclide emission data reports, preparing annual environmental monitoring reports and interfacing with other departments within the company, such as engineering, production, and construction, regarding compliance with environmental regulations. Responsible for technical management of numerous subcontracts related to environmental studies and services.

January 1982 to April 1986, Senior Engineer, Westinghouse Electric Corporation. Mr. Butterworth was responsible for the performance of systems analyses including Failure Modes and Effects Analyses (FMEA's) and cognitive task analyses, and for the development of design goals, design criteria, design constraints, functional requirements, and conceptual designs for various products and projects. Responsibilities included systems analyses of radioactive waste handling systems, of shallow land disposal design technology for new and existing low-level waste burial sites, and of combustor systems for municipal solid waste and hazardous waste. Had responsibility for the design of the Clinch River Breeder Reactor (CRBRP) Emergency Response Facilities (ERFs) to support the CRBRP Radiological Emergency Plan. Responsibilities included the performance of a formal design review of the system to comply with Nuclear Regulatory Commission (NRC) licensing QA

requirements, the preparation of support material for licensing hearings, and development of an understanding of the licensing requirements relative to safe designs and design documentation. Developed working knowledge of NRC licensing requirements regarding Emergency Planning in order to effectively design the ERFs and support licensing hearings. Also received patent with five others for the concept of an advanced alarm management system to enhance the control room operator's effectiveness in responding to truly abnormal events and maintain the safety status of the reactor and the plant.

August 1979 to January 1982, Staff Scientist (Mechanical/Nuclear Engineer), Science Applications, Inc. Mr. Butterworth specialized in criteria development and safety evaluations. Strong background in safety program development and radioactive material handling evaluations. Involved in safety evaluations of centrifuge facilities, uranium facilities, radioactive operations, and other hazardous operations. Tasks included identifying both radiological and chemical hazards associated with operations such as the processing of uranium solutions, storage of fissile materials, and radioactive waste handling and disposal. Prepared safety analysis reports for such facilities which required both development and analysis of credible accidents and assessment of the chemical, toxicological, and radiological effects upon both on-site and off-site personnel. Responsibilities included supervising a team of engineers, performing detailed analyses, and managing the overall task schedule and cost for compliance with the particular contract.

September 1978 to August 1979, Mechanical/Nuclear Engineer, JRB Associates, Inc. (Subsidiary of SAI) Mr. Butterworth co-managed a project for NIOSH to develop criteria and recommendations for work practices and engineering controls for coal liquefaction plants. Responsibilities included evaluating and managing manpower requirements, interfacing with various government agencies, evaluating feasibility and applicability of data, preparing the recommended criteria concerning engineering controls and emergency procedures, writing various chapters of the document, and becoming familiar with safety and health requirements for similar industries, such as coal gasification and coke ovens. An integral part of this effort involved conducting on-site plant studies at several operating coal liquefaction plants.

May 1976 to September 1978, Facility Safety Engineer, Department of Energy/Oak Ridge Operations. Mr. Butterworth coordinated safety programs as required by DOE of Contract Administrators and Project Engineers. Responsible for the implementation of DOE Manual Chapter requirements concerning facility safety programs at the Oak Ridge National Laboratory, including providing specific guidance concerning interpretation and implementation of DOE requirements. Performed reviews of safety evaluations, safety analysis reports, and technical specifications from the standpoint of a critical examination of the mechanisms for inadvertent release of radioactive materials from nuclear processes, for personnel injury, and for major damage at DOE Oak Ridge Facilities. Occasional duties also involved performing accident/incident investigations as a DOE Certified Accident/Incident Investigator. Familiar with system safety techniques, such as Fault Tree Analysis and Management Oversight and Risk Tree (MORT) and their use in accident/incident investigations.

June 1974 to May 1976, Reactor Engineer (Intern), Energy Research and Development Administration (formerly Atomic Energy Commission). Mr. Butterworth was responsible for the development and publication of RDT Standards concerning packaging, marking components, and quality control to be used in the Liquid Metal Fast Breeder Reactor (LMFBR) program and future advanced reactor programs. Analyzed unstable sodium pump characteristics to determine overall effects to the reactor primary coolant system.

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REBECCA L. BIGGS, RG

SENIOR GEOLOGIST

RELEVANT SPECIALIZED EXPERIENCE

Ms. Biggs performs project management tasks for a variety of commercial and government projects. Authors and serves as technical and editorial reviewer of various project documents including investigation and assessment reports, work plans, associated project support documents, and client and agency correspondence. Experience with project management includes understanding and meeting client objectives, reviewing and implementing current state and federal regulations, assigning work tasks to project staff, supervising the completion of project tasks and completing tasks efficiently and within budget. Also serves on project proposal teams, which are responsible for meeting both technical and corporate objectives.

Ms. Biggs applies statistical interpretations for evaluating environmental data associated with risk assessment, groundwater modeling and the development of sampling and optimization plans. Formulates assessment plans, post-closure monitoring plans and corrective action plans that include the identification of constituents of concern and determination of site concentration limits. Evaluated environmental data for risk screening purposes and has performed and interpreted risk-based calculations. Experience with report preparation includes data presentation and interpretation, technical writing and editing, report organization and management of report team members. Specialized in the design, development and management of technical database applications associated with the storage and retrieval of environmental data, as well as development and implementation of QA/QC procedures for both data management and environmental sampling activities.

Ms. Biggs served as laboratory coordinator for various sampling programs, and has developed data collection specifications and QA requirements necessary to document project activities and meet data quality objectives. Performed analytical data validation for a variety of investigations. Maintains strong computer skills and an understanding of many software packages including various database, graphics and word processing products.

EDUCATION

Graduate Courses in Hydrogeology

B.A., Geology, 1988

CERTIFICATIONS

Registered Geologist: Missouri

August 1998 to present, Senior Geologist/Project Manager, SAIC. Ms. Biggs has performed both technical and project management duties for various commercial and government projects, mainly RCRA, CERCLA, and FUSRAP sites. She serves as a technical and editorial reviewer for multiple projects with a variety of document submittals. She has also completed hydrogeologic and technical interpretation of sampling data, as well as report writing for many projects, including remedial investigations, risk assessments, feasibility studies, and range assessment reports. Additionally, Ms. Biggs has been a primary author of project support documents (work plans, safety plans, quality assurance plans, etc.), sampling optimization plans, work plans, post-closure plans, and corrective action plans.

Ms. Biggs has managed the compilation of many project deliverables including digital data transfers, as well as project correspondence and reports. Ms. Biggs has been involved with the development and management of environmental database systems for federal and commercial facilities. A requirement of these projects included the development of database programs for rapid retrieval, analysis and reporting of sampling data. Data management and presentation for these projects included the employment of statistical methods and screening procedures for evaluation of human health and ecological risk. Her involvement with these projects has required understanding and applicability of federal and state regulations and risk standards. Ms. Biggs also assists in the development and generation of project proposal materials. Her proposal experience includes participating on proposal teams for the environmental management of a large uranium enrichment facility in southern Ohio (RCRA), the RI/BRA/FS efforts for the Niagara Falls Storage Site in Buffalo, New York (FUSRAP/CERCLA), and several smaller commercial and government projects.

June 1990 to August 1998, Hydrogeologist, ARCADIS Geraghty & Miller, Inc. Ms. Biggs served as a Data/QA Manager for a multi-phase RCRA Facility Investigation (RFI) at the U.S. DOE Portsmouth Gaseous Diffusion Plant in southern Ohio. For this project, Ms. Biggs coordinated on-site and off-site laboratories, supervised the analytical data validation program, and developed and managed analytical databases, which stored information for thousands of analytical samples.

Other responsibilities included conducting audits of project laboratories, performing surveillance of field activities, and providing oversight for a staff of field QA officers. Ms. Biggs also developed database applications to aid in the reduction of large volumes of environmental data for use by project staff and served on the final report preparation team.

Ms. Biggs served as a task manager for several risk-based concentration (RBC) reports for approximately 80 CERCLA units at a facility in the upper Midwest. Tasks included data management and development of a statistical approach for calculating exposure point concentrations for specific media at each unit. A stream-lined process for production of the RBC reports resulted in removal of 15 solid waste management units from the CERCLA process within a 15 month period.

As QA/Data Manager for numerous projects, Ms. Biggs performed data management tasks and validation of laboratory data per the U.S. EPA National Functional Guidelines for Organic and Inorganic Data Review. Ms. Biggs also served as primary author of QA Project Plans for a variety of government and industrial site investigations. Ms. Biggs provided technical support to many projects and assisted in the organization, writing and editing of numerous field investigation reports. She co-authored and performed research and data assessment activities for Phase I and II Reports per the Ohio Voluntary Action Program.

June 1988 to June 1990, Data Manager/Geologist, Geraghty & Miller, Inc. While working with the Groundwater Modeling Group, Ms. Biggs performed data management activities and groundwater modeling tasks in support of several senior groundwater modeling project managers. Task included the compilation, reduction and presentation of data to be used in groundwater modeling applications and project reports. During this time, Ms. Biggs also assisted in the development of a Geographical Information System (GIS) for a DOE facility in southern Ohio.

HALLIE J. SERAZIN

HUMAN HEALTH RISK ASSESSOR

RELEVANT SPECIALIZED EXPERIENCE

Hallie Serazin has twenty years experience working on a broad range of regulatory and environmental projects. She has conducted basic research ranging from heavy metals toxicity to aquatic and old-field environmental communities; environmental monitoring of the toxicity of National Permit Discharge elimination System (NPDES) permitted discharges, human health risk assessment, ecological risk assessment, and has coordinated laboratory analysis of environmental samples. She has experience in the negotiation of consent agreements with Superfund "Potentially Responsible Parties".

Ms. Serazin has completed risk assessment work for Resource Conservation and Recovery Act (RCRA) sites, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA aka Superfund) sites, Formerly Utilized Sites Remedial Action Plan (FUSRAP) sites, and State-lead hazardous waste sites in New York, Ohio, Kentucky, Pennsylvania, Georgia, Illinois and Texas. Ms. Serazin has provided expert testimony at public meetings and at trials involving public endangerment due to potential exposures to hazardous and incompatible substances. She supervised the Ohio Environmental Protection Agency's Environmental Assessment Unit responsible for over-seeing risk assessments conducted for CERCLA sites throughout Ohio and for developing state policy related to Natural Resource Damage Assessment.

Ms. Serazin has completed radiological dose and risk assessments using the Residual Radiation (RESRAD) model and has completed numerous risk assessments for chemically and radiologically contaminated sites in Ohio, Texas and New York. Ms. Serazin assisted with completion of a Vulnerability Assessment conducted for the Columbus Division of Water and made security enhancements recommendations for the Division of Water. Ms. Serazin received a B.A. in Zoology from Miami University, Oxford, Ohio in 1982 and a M.S. in Environmental Toxicology from the Ohio State University, Columbus, Ohio in 1990.

EDUCATION

M.S. Environmental Toxicology, 1990.

B.S. Zoology, 1982

TRAINING

Texas Natural Resources Conservation Commission (TNRCC) – Texas Risk Reduction Program (TRRP) Training Seminar, Houston, Texas, 2001

RESRAD Workshop covering RESRAD-Baseline, RESRAD-Build, RESRAD-Recycle, and RESRAD-Chemical computer codes, Argonne National Labs, Argonne, Illinois, 2001.

Implementing Residual Radioactive Material Guidelines Using RESRAD, SAIC 2000

Advanced Risk Assessment: Biological and Environmental Modeling, University of Cincinnati, 1991.

Radiation Safety at Superfund Sites, USEPA Office of Emergency and Remedial Response, 1990.

Risk Assessment: Principals and Application, University of Cincinnati, 1989.

Environmental Risk Assessment, USEPA Office of Emergency and Remedial Response, 1987.

September 1998 – Present, Project Manager/Senior Risk Assessment Scientist, SAIC. Following completion of the Remedial Investigation (RI) and Baseline Risk Assessment for the Niagara Falls Storage Site (NFSS), a FUSRAP site in Lewiston, New York, Ms. Serazin provided comment responses and identified potential RI data gaps. Ms. Serazin gave two public presentations for the NFSS; one to present key findings from the RI and another to respond to inquiries received regarding the RI. All public comments were recorded in a Responsiveness Summary matrix and addressed. The Army Corps of Engineers, Buffalo District staff working on the NFSS are pleased with Ms. Serazin's support and she will continue to be an integral part the NFSS technical project team as the site moves into the Feasibility Study phase.

In August 1999, Ms. Serazin began serving as principal investigator for the completion of several residual risk evaluations conducted for the Department of Energy's (DOE) Miamisburg Closure Project (MCP). The MCP has been transitioned from a cold-war production facility to a commercial/industrial park. Residual risk evaluation reports were completed to quantify human health risks associated with residual levels of chemical and radiological contamination to ensure that future users of the land are not exposed to contaminant levels that might pose unacceptable risks. The completion of these reports required careful selection and management of parcel data and agreement from U.S. EPA, Ohio EPA and the DOE on risk assessment protocols and procedures. In addition to residual risk evaluations, Ms. Serazin also provided an evaluation of compliance options for release of Mound's Phase I property with groundwater contamination above Maximum Contaminant Levels (MCLs). This analysis resulted in the selection of a monitored natural attenuation approach and a cost savings for the client.

In August 2006 Ms. Serazin completed a National Environmental Protection Act (NEPA) compliant Environmental Assessment (EA) for the Ohio 4-H Youth Development Center constructed on the campus of the Ohio State University. Based on Congressional action, the DOE agreed to provide funding to support the construction of a hybrid geothermal/cooling tower heating, ventilating, and cooling (HVAC) system, and to support the use of recycled structural steel for the Ohio 4-H Center. DOE's decision to use federal funds in support of the project required that a NEPA compliant EA be prepared to

evaluate the potential environmental impacts of the project. Ms. Serazin completed the EA in an expedited fashion and the client was issued a Finding of No Significant Impact with no impact to the project's construction schedule. Following completion, the building was granted Leadership in Energy and Environmental Design (LEED) certification to become the first "green" building on the Ohio State University's campus.

Between July and December 2007 Ms. Serazin revised the human heath risk assessment and screening level ecological risk assessment completed for a small-arms firing range at Scott Air Force Base in Illinois. Modifications were needed to incorporate analytical results for soil samples taken from the firing range impact berm which contained high levels of lead. Exposure point concentrations were calculated, human health and ecological risk was assessed and the nature and extent of contaminations was revised. Preliminary remedial goals were calculated for newly identified constituents of concern. The report was accepted with only minor comments requiring no document revisions.

In 2003, Ms. Serazin was selected by the DOE – Ohio Field Office to oversee the completion of all the decision documentation for the Miami-Erie Canal property. Decision documents completed for this parcel of land included a Residual Risk Evaluation, a Screening Level Ecological Risk Evaluation, a Proposed Plan and Record of Decision. Ms. Serazin oversaw the completion of all required decision documents, provided public notice for the intended action and arraigned a public meeting required for site closure. The Miami-Erie Canal Record of Decision was completed in September 2004, on time and under budget. The Miami-Erie Canal decision documents met regulator needs and the services provided during completion of the decision documents surpassed client expectations resulting in the award of a contract for the completion of an Offsite Baseline Risk Assessment (BRA) for the MCP.

Under contract to the United States Corps of Engineers (USACE), Ms. Serazin provided risk assessment services for several Formerly Utilized Sites Remedial Action Program (FUSRAP) sites in Ohio including the Luckey and Painesville FUSRAP sites. Specific responsibilities include conducting CERCLA risk and radiological dose assessments; providing human health risk assessment consultation; and acting as task leader for the completion of human health, ecological and radiological risk assessments. Ms. Serazin acted as Task Manager for completion of the draft Technical Memorandum and the baseline risk assessment for the Luckey site. As a stakeholder for the Luckey FUSRAP project Ms. Serazin was also required to provide technical updates and to foster open communication with Ohio EPA, Ohio DOH, and the USACE. In part, as the results of Ms. Serazin's work at the Luckey site, the USACE sent a letter acknowledging the exemplary performance of SAIC.

Beginning in June 1999 Ms. Serazin provided risk assessment services for the U.S. DOE Pantex Plant located outside Amarillo, Texas. Ms. Serazin served as a senior risk assessor to revise the Risk Reduction Rule Guidance (RRRG) for the DOE's Pantex Plant. The revised and user-friendlier RRRG allowed remediation program staff to makes appropriate comparisons to between detected analyte concentrations and cleanup values for soil and groundwater. Ms. Serazin also assisted with preparation of a document presenting site-specific radiological backgrounds for groundwater. In 2005, Ms. Serazin served as a senior risk assessor for the Pantex Plant Baseline Risk Assessment and completed evaluations for the Nuclear Waste Accident Repository, the Fire Training Area Burn Pits, and Landfill 7. She also assisted with the preparation of spreadsheets to calculate site-wide media-specific Unit Risk Factors.

Ms. Serazin worked closely with the Scotts Company and their legal counsel to construct Consent Orders and negotiate a RCRA Facility Investigation Work Plan for Scotts' property in Marysville, Ohio. Ms. Serazin completed an Appendix to the Consent Order describing proposed strategies for assessing chemical, physical and biological conditions in Crosses Run, a small stream that flows through Scotts' property. The strategy described tools to manage unacceptable risks, and discussed related activities such as source control and habitat augmentation.

As part of a Vulnerability Assessment performed for the Columbus, Ohio, Division of Water, Ms. Serazin provided an analysis of chemical, biological and radiological threats that the system could potentially face. Vulnerability assessments help water systems evaluate susceptibility to potential threats and identify corrective actions that can reduce or mitigate the risk of serious consequences from adversarial actions. For a follow-on contract with the Columbus Division of Water, Ms. Serazin made recommendations regarding needed security enhancements including the installation of an online contaminant monitoring system.

In April 2006, Ms. Serazin was selected to record meeting notes for the U.S. EPA's Office of Science, Human Studies Review Board (HSRB). The HSRB is a Federal Advisory Committee formed to provide EPA with advice, information, and recommendations on issues related to scientific and ethical aspects of human subjects research, particularly intentional dosing studies with pesticide products. Ms. Serazin was selected for this job due to her understanding of toxicological principles and her regulatory expertise.

January 1996 – September 1998, Senior Scientist/Risk Assessment Services ARCADIS Geraghty & Miller, Inc. (Formerly Geraghty & Miller Inc.). Ms. Serazin's job duties at ARCADIS Geraghty & Miller (AG&M) included both project management and business development tasks. Business development functions included work on numerous proposals and presentations for perspective clients. Responding to requests for proposals required Ms. Serazin to have a thorough understanding of site conditions, applicable regulations and suitable remedial technologies. Ms. Serazin completed numerous Risk Reduction Standard Reports for the Georgia Power Company and the Atlanta Gas Light Company. These

sites included former manufactured gas plants, steam electric generating plants, gas transfer stations and electrical switching stations. In addition to the development of risk reduction standards for residential and industrial future use scenarios, Ms. Serazin completed a statistical white paper, which made recommendations for the evaluation of background concentrations for soil using small sample sizes. This paper was developed with input from the Georgia Industrial Environmental Council and presented to the Georgia Environmental Protection Division (GaEPD) for consideration for use at HSRA sites.

In 1998, Ms. Serazin served as part of an inter-disciplinarian team of representatives from industry and government who worked cooperatively with the Ohio Department of Commerce and the Ohio Division of State Fire Marshall's Bureau of Underground Storage Tanks (BUSTR). The team incorporated American Society for Testing and Materials (ASTM) Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites (RBCA) into Ohio Revised Code. The rule adopted by the Fire Marshall allowed for the use of risk-based techniques for several aspects of underground storage tank operations and closure.

July 1992 - December 1995, Senior Scientist, Foster Wheeler Environmental Corp.(Formerly Ebasco Services Inc.) Ms. Serazin completed human health and ecological risk assessments, made observations regarding proximity of residents to the site, the potential pathways of exposure and surveyed ecological communities for the presence of threatened or endangered species and for possible impacts due to exposures to site contaminants.

Ms. Serazin served as a Senior Scientist to complete a risk assessment for Region V EPA at the Union Carbide Corporation former production site in Marietta, Ohio. Potential impacts were evaluated for the public, site workers, and nearby environmental communities including the Ohio River.

Ms. Serazin assisted with the preparation of a till/vadose zone investigation project for the Department of Energy's (DOE's) Fernald Environmental Management Project (FEMP). The purpose of this project was to develop a plan for investigating the till system at the FEMP to meet the overall risk assessment and remediation needs. Ms. Serazin developed a chronology of site compliance and non-compliance and identified Applicable Relevant and Appropriate/To Be Considered regulations (ARARs/TBCs) for FEMP. She reviewed several new or enhanced technologies, which were under consideration for the treatment of uranium contaminated soils. Ms. Serazin assisted with the delineation of jurisdiction wetlands and waste determination files to ensure that waste materials were disposed of safely and appropriately.

In February 1995, Ms. Serazin was invited to participate in a multi-disciplinary board formed to negotiate regulations for Ohio's Senate Bill 221, which created Ohio's Voluntary Action Program (VAP). The VAP allows a developer or property owner to take the initiative to clean up a site voluntarily without undue regulatory interference. Ms. Serazin served on the Variance Procedure Subcommittee as well as the Generic Numeric Standards and Property Specific Risk Assessment Procedures Subcommittee. Ms Serazin served as a VAP Certified Profressional from 1999-2001.

July 1989 - July 1992, Group Leader, Environmental Assessment Unit, Ohio EPA Division of Emergency and Remedial Response. Ms. Serazin worked closely with USEPA, "Potentially Responsible Parties" and their consultants to design and implement CERCLA risk assessments. She coordinated with Ohio EPA legal counsel to craft Consent Orders and negotiate work plans. She reviewed public health evaluations submitted to the Ohio EPA as part of the CERCLA Remedial Investigation process or for RCRA clean closure certification. Ms. Serazin also provided expert testimony at public meetings and trials on the potential human health and ecological impacts associated with various toxic compounds. She presented risk assessment training to Ohio EPA staff and assisted other DERR personnel with sampling efforts at hazardous waste sites in Ohio.

May 1984 - July 1989, Environmental Scientist II, Ohio EPA Division of Water Quality Monitoring and Assessment. Ms. Serazin maintained breeding populations of experimental organisms and conducted acute and chronic bioassays to assess the toxicity of industrial and municipal discharges to Ohio waters. She analyzed bioassay data, wrote technical reports and coordinated biological test results with chemical analysis. She also made recommendations concerning the levels of toxic substances entering the waters of the state of Ohio to ensure compliance with relevant state and federal regulations. She was personally involved in the regulation of approximately 450 single point discharges.

May 1982 - May 1984, Research Associate to Dr. Robert Winner, Miami University Department of Zoology. Ms. Serazin conducted heavy metal toxicity and accumulation studies with Daphnia sp. She prepared and analyzed all experimental media, generated daily census data and performed statistical analyses.

September 1979 – May 1981, Student research assistant to Dr. Gary Barrett, Miami University, Ecological Research Center. Ms. Serazin set trap-lines and collected mark and recapture data on a meadow vole population following land application of sewage sludge and commercial fertilizer. She maintained experimental plots and surveyed resident plant communities.

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DENNIS R. CHAMBERS, CHP, RRPT

CERTIFIED HEALTH PHYSICIST

RELEVANT SPECIALIZED EXPERIENCE

Extensive and diverse training and experience in health physics and safety management. Provide support as Certified Health Physicist to multiple SAIC clients for radiological projects. Support has included technical support for a variety of remediation efforts including oversight of a decommissioning project performed by another contractor; investigation of safety complaints filed with the U.S. Nuclear Regulatory Commission; and extensive support for operations involving naturally occurring radioactive materials. Managed health physics program and CERCLA documentation for St Louis Formerly Utilized Sites Remedial Action Program (FUSRAP). Managed life-cycle health physics program for world-wide military use of materiel containing ionizing and non-ionizing radiation sources to include research, development, production, use, maintenance, and disposal. Provided health physics support for Army depleted uranium penetrator and armor research, development, and testing as well as for radiological decontamination and decommissioning and remediation projects, commercial and military nuclear power plants, a major defense research facility, nd for special weapons. Managed radiochemistry laboratories. Many years of experience developing and presenting health physics, chemistry, and CBRN instruction.

EDUCATION

BSAST Radiation Protection, 1994

CERTIFICATIONS

Certified Health Physicist, American Board of Health Physics

Certified Nuclear Power Plant Operator, U.S. Army

Certified “Corps Eligible”, Army Acquisition Corps, Systems Engineering

Certified HAZWOPR qualified including refreshers

Certified DOT Hazardous and Radioactive Waste Transportation Certified as Senior Instructor, U.S. Army

2006 to Present, Certified Health Physicist, SAIC providing technical support for a variety of client radiological programs including: investigation of elevated radioactivity resulting from oil and gas production waters and previously unidentified industrial abrasives; technical oversight of the remediation of the Boeing Michigan Aeronautical Research Center (BOMARC) Site, McGuire Air Force Base, NJ. Also investigated radiation safety program issues at Southeast Missouri State University, Cape Girardeau, MO; assessed the technical capabilities for field use of XRF for field analysis of radiological constituents; provided professional health physics support to development of inputs to Decontamination and Decommissioning Plan for U.S. Army Jefferson Proving Ground; managed radiological surveys of road surveys performed for the City of Niagara Falls, NY; developed a technical white paper on comparison of Inductively Coupled Plasma – Mass Spectrometry and Alpha Spectrometry for the quantification of natural and depleted uranium in soil and groundwater; Radiation Control Manager for DOE EIS project; and authored draft NRC license application package for Army possession of depleted uranium in the Davey Crockett weapon system.

1998 to 2006: Health Physics Program Manager and Radiation Safety Officer for remediation of the St Louis FUSRAP Sites. Developed and managed comprehensive radiological remediation and health physics programs in support of a $50 to 60 million annual FUSRAP. Provided technical direction and managed radiological and health physics issues including site characterization; risk assessment; remedial investigation; remedial design; remedial action; internal and external dosimetry; final status surveys; site closeout; environmental documentation; and transportation and disposal of radiologically contaminated and mixed wastes. Provided management oversight of remediation procedures to maximize technical adequacy and cost effectiveness. Managed a fully capable on-site laboratory that utilized a variety of analytical methods including alpha spectrometry, gamma spectroscopy, uranium by KPA, and gross alpha and beta. Fully implemented MARSSIM final status surveys beginning within about six months after issuance of the manual. Managed CERCLA Feasibility Studies/Proposed Plans and Record of Decision. DOD (Army) Representative to MARSSIM Working Group for development of Multi-Agency Radiation Survey and Assessment of Materials and Equipment (MARSAME) procedures that will become the state-of-the-art for clearance of materials and equipment within the next 18 months.

1982 to 1998: Health Physicist and Radiation Safety Program Manager for military command with responsibility for life-cycle management of materiel used by Department of Defense and allied personnel worldwide. Managed health physics support for research, development, manufacturing, testing, U.S. Nuclear Regulatory Commission (NRC) licensing, use of radioactive materials by army field personnel, quality control, maintenance, dosimetry and disposal. Developed and implemented radiation safety program (including dosimetry) for portable, high-dose rate, industrial x-ray systems for Army-wide flight-line analysis of aircraft serviceability. Managed safety program for lasers and RF emitters incorporated into aircraft including lasers with NOHDs exceeding 20 kilometers. Coordinated professional development training for health physicists and radiation safety personnel Army-wide. Managed budget, manpower, and automation for Safety and Aviation Safety of Flight functions and coordinated funding for worldwide Army aviation accident investigations. Provided health physics support to Headquarters, U.S. Army Materiel Command, and to other AMC activities for a variety of projects including DU munitions.

1982 - 1996: Chief Instructor, U.S. Army Reserve/ROTC. Managed and presented chemical, biological, radiological and nuclear instruction.

1978 - 1982: Health Physics Specialist Supervisor/Alternate RSO for U.S. Army Ballistic Research Laboratory. Professional health physics support for a wide variety of radiological operations including large and small caliber depleted uranium (DU) firing ranges; a low power positive ion accelerator; decommissioning of a tritium-contaminated Cockroft-Walton accelerator; an industrial x-ray facility; about 25 research sites with pulse x-rays; the Army' s radiation emergency response team; and a Health Physics and Radiac Calibration Laboratory. Performed radiological assessments including internal and external dosimetry evaluations; developed procedures; and prepared applications (encompassing 1200 pages) for three NRC Source Material Licenses. Also implemented environmental radiological surveillance programs and performed associated laboratory analyses. Authored or co-authored research studies on aerosolization of depleted uranium (and the associated implications with respect to internal dosimetry of troops world-wide). Designed ventilation systems for large caliber DU range; and coordinated radioactive waste shipments.

STEPHEN DAVIS

QUALITY ASSURANCE AND ENVIRONMENTAL, HEALTH AND SAFETY MANAGER

RELEVANT SPECIALIZED EXPERIENCE

Mr. Davis has 27 years of experience in health and safety program management, occupational health management, workers compensation program management, industrial hygiene, safety, and environmental compliance. Experience includes research, program management, management of behavior-based-safety systems, project management and line management.

He has performed hazard assessments and specified hazard controls in operations including; hazardous waste remediation, plastics manufacturing, metal working, cloth dyeing, carpet manufacturing, fabric production, paper production, vehicle maintenance, laboratory analysis, automotive parts production, food processing, and others.

He has written or reviewed dozens of health and safety plans for remedial investigations and remedial actions involving contaminants such as petroleum residues, uranium, thorium, acidic sludge, dioxins, carbon disulfide, polychlorinated biphenyls, vinyl chloride, benzene, partially buried unexploded ordnance, etc. Tasks addressed in these plans include monitoring well installation, incineration, operation and maintenance of contaminant treatment plants, slurry wall installation, excavation, gasoline sampling, subsurface soil sampling, surface soil sampling, groundwater sampling, surface water sampling, lake water sampling from boats, macroinvertebrate sampling from boats, small mammal trapping, electrofishing, air sampling, waste lagoon sampling, waste treatability studies, underground storage tank removal, etc.

He has served as site health and safety officer for remedial projects involving PCBs, dioxins, gasoline, acid wastes, and miscellaneous solvents. He has delivered dozens of hazardous waste training courses for clients such as the US Navy, US Army Corps of Engineers, US Environmental Protection Agency, state of California, state of Nevada, Martin Marietta Energy Systems, Boeing, Hughes Aircraft, etc.

He has also spoken at American Society for Testing and Materials (ASTM) sponsored meetings on protective clothing performance, at American Board of Industrial Hygiene sponsored meetings on hazardous waste and at U.S. Environmental Protection Association (EPA) sponsored meetings on design and construction issues at hazardous waste sites. He has served on the ASTM committee for standardization of totally encapsulating protective clothing and the American Industrial Hygiene Association Local Section Council.

EDUCATION

M.S.P.H Industrial Hygiene, 1983

B.S., Zoology, 1975

CERTIFICATION/LICENSING:

Certified in the Comprehensive Practice of Industrial Hygiene by the American Board of Industrial Hygiene (#4213)

Certified Safety Professional by the Board of Certified Safety Professionals (#10044)

SECURITY CLEARANCE

Department of Energy Q Clearance (inactive)

CUSTOMERS

Department of Energy (DOE)
Department of Defense (DOD)
State of California US Navy

February 2010 to present: Business Unit Environmental Health and Safety and Qualitiy Assurance Manager, SAIC.

February 1993 to February 2010: Business Unit Environmental Health and Safety Manager, SAIC. Mr. Davis manages the Environmental Health and Safety and Quality Assurance programs. Activities include interpreting regulations, setting policy, performing training, tracking performance of the program, writing or reviewing procedures and health and safety plans, conducting accident investigations, auditing field projects, and providing services to clients. Projects include: Program descriptions for the Paducah LMES Industrial Hygiene Department. Managed a project to assist the industrial hygiene staff in producing program descriptions for the nine major industrial hygiene programs at this site. These descriptions prescribe the general approach and strategy for each of these programs. Remedial investigation health and safety plan for K-25 Site. Prepared the Health and Safety Plan for the K-901 Operable Unit Remedial Investigation at the K-25 Site. The Health and Safety Plan was written to address the hazards and controls for tasks including surface and subsurface soil sampling, surface and subsurface water sampling, monitoring well installation, pond water sampling from boats, pond sediment sampling from boats, biota sampling, electrofishing, and excavation. It is organized in the format specified in the "Annotated Outlines For Documents Required By FFA and CERCLA For Oak Ridge Reservation Sites" (DOE 1993). Customized and presented refresher training for Kelly Air Force Base and the Engineering and Environmental Compliance Group of SAIC to reflect realistic hazards expected during the performance of organization-specific tasks. These training packages include actual accidents, near accidents, and controls for the relevant hazards.

October 1983 to February 1993: Regional Manager for Health and Safety Consulting, IT Corporation. Activities included managing a consulting program delivering health and safety program audits, health and safety training, field project health and safety oversight, job hazard analyses, and occupational exposure monitoring. Projects include: Health and safety support to the U.S. Army Corps of Engineers (USACE). This included project management and on-site participation in a project that delivered a range of health and safety services to USACE at the Bruin Lagoon Superfund Site. The acid sludge disposal site was being remediated by excavating the sludge, mixing it with lime and soil and burying the mix on site. Services consisted of health and safety oversight of the remedial contractor, general health and safety technical advice, on-site monitoring with four real-time instruments mounted on an all terrain vehicle, and installation and maintenance of a real-time datalogging system to collect and store results from multiple hydrogen sulfide and hydrogen chloride sensors installed at the site perimeter. The datalogging system was equipped with alarms, which notified the USACE Contract Officer Representative when pre-set emission levels were exceeded. Following project completion the general results of the air-monitoring program were published and presented, with USACE and EPA input and approval, at the EPA Design and Construction Conference.

Industrial hygiene support for remedial investigation on the U.S. Department of Energy (DOE) Feed Materials Production Center, Feral, Ohio. The primary objective of this activity was to attain compliance with the requirements of 29 CFR 1910.120, the Hazardous Waste Operations and Emergency Response standard. Activities included detailed on-site hazard assessment, coordination with DOE representatives, air monitoring, and production of over 20 task-specific health and safety plans. Job hazard analyses for Ft. Bliss Army Post. Managed and participated in a project to perform hundreds of job hazard analyses at the Ft. Bliss Army Post for AIRHAS (HAZWRAP). On site work consisted of interviewing army personnel, observing operations, inventorying chemicals, assessing the nature and severity of potential exposures, and identifying issues that needed immediate attention. The project also included reducing the data to Army codes and entering the accumulated data into the Army's Health Hazard Information Module database.

Compliance audit for Martin Marietta Energy Systems. Participated in an audit to assess the state of compliance with paragraph 8(e) of the Toxic Substances Control Act. This project included interviewing key personnel in the medical, industrial hygiene, and safety departments at five Department of Energy sites, assessing interview results to determine if information met the regulatory reporting requirements, and generating a final report containing a summary of results and recommendations on what data should be reported to the EPA.

Respiratory protection audit for Martin Marietta Energy Systems. Participated in auditing the respiratory protection programs at five Department of Energy sites. The audit addressed compliance with OSHA regulations and ANSI recommendations and included visiting cleaning and storage facilities, examining relevant documents, interviewing respirator program administrators, interviewing respirator issuers, interviewing respirator users, and generating the final report.

Chemical spill response training. Participated in a project to provide 7 sessions of emergency response technician training to emergency squad members at the Y-12 Department of Energy site.

Hazardous waste training. Presented over fifteen 24 hour SARA/OSHA hazardous waste safety courses at the K-25 Site. These courses consisted of modules developed by the K-25 Site training staff and included site-specific hazards, alarms, and programs. Participation in and management of the development and delivery (over 20 sessions) of the 3-day "Hazard Appraisal and Recognition Planning," for the California Department of Health Services. This course is the basic health and safety training for the hazardous waste compliance officers. It was developed to meet the specific needs of the sponsor and included training in preparation of program-specific hazard assessment forms, use of program-specific monitoring instruments, and compliance with program specific policies. Participation in the development and delivery of "Air Surveillance for Hazardous Materials," a 4-day course conducted for the California Specialized Training Institute. The course was designed to enable students to calibrate and operate commonly used real-time instruments. The program included detailed interpretation of instrument readings in a variety of realistic field exercises. Participated in the development and presentation of "The Navy Hazardous Substance Incident Response Management Course." The first phase consisted of coordination of development and production of the 400-page student manual. The second phase included 25 presentations of the 1-week course at sites including Kaneohe Bay, Pearl Harbor, Norfolk, Charleston, Washington, D.C., Guam, Treasure Island, Oakland, Philadelphia, Pensacola, San Diego, Port Hueneme, and Seattle.

Miscellaneous: American Academy of Industrial Hygiene - Current American Industrial Hygiene Association - Current American Society of Safety Engineers - Former member of Committee F-23 on Protective Clothing American Society for Testing and Materials - Former member of Task Force on Environmental Suit Standardization Hazardous Waste Action Coalition

Publications:

Davis, Stephen L., 1985, "Permeation Testing of Protective Gloves Exposed to Selected High Hazard Pesticides," report prepared under EPA contract number 68 03 3069, IT Corporation, Edison, New Jersey.

Davis, S.L., C.E. Feigley, and G.A. Dwiggins, 1984, "A Comparison of Two Methods Used to Measure Permeation of Glove Materials by a Complex Organic Mixture," American Society for Testing and Materials (ASTM) Special Technical Publication, First International ASTM Symposium on the Performance of Protective Clothing.

Davis, S.L., and B. Khona, 1991, "Airborne Exposure Control at an Acid Sludge Remedial Site," published in the proceedings of USEPA conference, Design and Construction Issues at Hazardous Waste Sites.

Technical Presentations:

Davis, Stephen, L., 1983, "Permeation of Glove Materials by Liquified Coal," Carolina's Section, American Industrial Hygiene Association, Asheville, North Carolina. Davis, Stephen, L., 1985, "Industrial Hygiene Assessment for Initial Entry into Hazardous Waste Sites," Joint Conference of Occupational Health (JCOH), Orlando, Florida, 1985.

Davis, Stephen, L., 1983, "A Comparison of Two Methods Used to Measure Permeation of Glove Materials by a Complex Organic Mixture," Carolina's Section, American Industrial Hygiene Association, Asheville, North Carolina.

Davis, Stephen, L., 1991, "Airborne Exposure Control at an Acid Sludge Remedial Site," USEPA Conference, Design and Construction Issues at Hazardous Waste Sites.

References: JT Grumski, General Manager E2I Business Unit

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HARRY W. FATKIN III

RISK SCIENTIST

RELEVANT SPECIALIZED EXPERIENCE

Seventeen years as an environmental engineer/scientist performing; human health and ecological risk assessments for chemical and radiological contaminants, fate and transport modeling, contaminant mass balance evaluations, database compilation and management, statistical analysis, remedial alternative assessment, and programming with Visual BASIC, SAS, SQL

EDUCATION

B.S. Engineering Analysis, Environmental Systems Engineering concentration, 1989

Science Applications International Corporation, Oak Ridge, TN (1998-Present). Provided risk assessments and general environmental engineering support to remedial investigations at DOE facilities. Provided support of DCGL calculations for decomissioning of an NRC facility in NY utilizing RESRAD. Used Monte Carlo simulations to support modification of an NPDES permit for mercury contaminated surface water and biota. Assessed human health risks in support of reindustrialization of DOE facilities using SAS software. Conducted ecological and human health uptake modeling required to assess human health risks from a mixed waste incinerator. Developed waste acceptance criteria in support of a CERCLA disposal cell. Performed probabilistic SESOIL and AT123D fate and transport modeling which included stability evaluations for predicted groundwater concentrations. Supported flux evaluation for a watershed scale study, including development of a theoretical rating curve for a critical surface water monitoring location. Conducted evaluation of vapor intrusion potential for reindustrialization effort associated with DOE facilities.

Applied the Storm Water Management Model (SWMM) to evaluate contaminant transport in support of several large scale site-wide investigations.

Contributed to development of a variance report for risk-based end state versus currently planned end-state for a large DOE complex.

CDM Federal Programs Corporation, Oak Ridge, Tennessee (1993-1998). Provided a contaminant mass balance analysis for a watershed of 1,100 acres containing discharges from over 200 NPDES permitted outfalls in support of a remedial investigation of a nuclear weapons complex. The investigation area included; mixed waste surface impoundments, salvage yards for contaminated scrap metal, storage vaults for radioactive material, as well as biota contaminated with mercury and PCBs. Managed compilation of a surface water database containing over 200,000 records with more than 70 data fields using Paradox software.

Trained with the Remedial Action Assessment System (RAAS) and Multimedia Environmental Pollutant Assessment System (MEPAS) developed for use at federal facilities.

Conducted preliminary human health and ecological risk assessments for military facilities in Massachusetts and Maine.

International Technology Corporation, Knoxville, Tennessee (1990-1993). Conducted human health chemical and radiological risk assessments at sites on the National Priorities List, Department of Energy facilities, and Department of Defense bases in AL, KY, OH, MA, NJ, NC, TN, AL, CA. Modeled biouptake of chemicals in vegetation, as well as vapor intrusion of volatile organic chemicals into buildings foundations. Utilized computer software including: PCGEMS, SESOIL, RESRAD, and HELP models.

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COREY PACER, P.E.

SENIOR ENGINEER

RELEVANT SPECIALIZED EXPERIENCE

Mr. Pacer has 11 years experience within the environmental engineering and compliance industry working on CERCLA, Ohio Voluntary Action Program (VAP), and RCRA projects. He is an Environmental Engineer with SAIC's Energy, Environment and Infrastructure Business Unit. Mr. Pacer has a diverse educational background with an emphasis on problem solving. Mr. Pacer is a Front Line Supervisor (FLS) within the Dick Division and currently is serving as Deputy Project Manager for the Feasibility Study at the Former Harshaw Chemical Company Site project under contract to the United States Corps of Engineers Buffalo District. The site is part of the Formerly Utilized Sites Remedial Action Program (FUSRAP).

In addition, Mr. Pacer has supported the Benham Companies on the National Aeronautics and Space Administration (NASA) Glenn Research Center (GRC) Design-Build of a Vibro-Acoustic Test Capability Project at NASA GRC's Plum Brook Station in Sandusky, Ohio. Mr. Pacer has supported Benham in a variety of capacities including site engineer, configuration manager, proposal modification supporting author, and completing the system and software hazards analysis for the test facilities.

Prior to that, Mr. Pacer had served as the SAIC/NASA Special Tasks Lead responsible for the oversight and successful implementation of special tasks with total funded values up to $2.5M. His specific work experience includes program/project management, the development of engineering studies and designs for the mitigation of environmental contamination, remediation/construction oversight, development of demolition designs, and environmental compliance.

EDUCATION

M.S., Environmental Engineering, 2004

B.S., Biology, 1998

CERTIFICATIONS

Professional Engineer: Ohio

TRAINING

40-Hour OSHA Hazwoper

10-Hour OSHA Construction Safety and Health

Certified AutoCAD 2000 and 2000i Operator

January 2002 to Present, Environmental Engineer, SAIC. Mr. Pacer currently is a Front Line Supervisor in the Dick Division with 6 direct reports. Mr. Pacer is currently serving as Deputy Project Manager for the Feasibility Study at the Former Harshaw Chemical Company Site project under contract to the United States Corps of Engineers Buffalo District. The site is part of the FUSRAP program. His responsibilities include financial tracking and reporting, staff management, and client interaction.

Mr. Pacer has supported the Benham Companies on the NASA GRC Design-Build of a Vibro-Acoustic Test Capability Project at Plum Brook Station in Sandusky, Ohio. Mr. Pacer has supported Benham in a variety of capacities including site engineer, configuration manager, proposal modification supporting author, and completing the system and software hazards analysis for the test facilities.

Mr. Pacer served as the SAIC/NASA Special Tasks Lead for the Twinsburg, Ohio Office. His responsibilities include working with the client to develop overall program objectives, fiscal oversight of all tasks, ensure all tasks adhere to program objectives, and business development activities, including marketing and proposal development. The special tasks range in scope from development of a remedial design for impacted soil, underground storage tank investigations, demolition design and environmental investigations of soil and groundwater throughout the center.

Mr. Pacer has served as Project Manager for the high purity cleaning of the Space Power Facility's Vacuum Test Chamber at NASA Plum Brook Station in Sandusky, Ohio. NASA contracted SAIC to clean the Vacuum Test Chamber with a limited budget and an expedited schedule. As part of the task, Mr. Pacer assisted in developing the statement of work and solicited competitive bids to subcontract the cleaning services. Under Mr. Pacer's direction, SAIC was able to successfully clean the Vacuum Test Chamber three days ahead of schedule and under budget.

Mr. Pacer has served as Project Manager for the design and implementation of the South 15 Area Remedial Design Work Plan for the NASA Glenn Research Center in Cleveland, Ohio. Project components included developing a remedial design for the removal of impacted soil, demolition of several support buildings, utility abandonment, and installation of a landfill cap in accordance with Ohio EPA's 1976 solid waste landfill cap rules. In addition, Mr. Pacer developed a white paper which evaluated the historic boundary of the landfill to be capped and assisted NASA GRC in the successful negotiation for reducing the landfill boundary by 50% and saving NASA GRC approximately $1M in construction costs.

Mr. Pacer served as lead engineer for the development of a remedial design for the excavation, treatment, and off-site disposal of approximately 3,700 tons of metals-impacted soil at a former Ohio Army National Guard Firing Range. Mr. Pacer was responsible for coordinating the design effort with the design team, developing the overall project strategy and approach, and working with the client and agency to establish project goals and objectives. In addition, Mr. Pacer served as Construction Site Manager with Juan Alvarado to provide oversight support over the remedial subcontractor. Mr. Pacer also led the effort to develop the No Further Action letter under the Ohio EPA's Voluntary Action Program. NFA status was granted for the property in May 2007.

In addition, Mr. Pacer has provided technical support for the development of several remedial action procurement packages. This support included the development of contractual documents, solicitation of bids, and selection and technical justification of the qualified remedial subcontractors.

Mr. Pacer has provided construction oversight support to NASA during implementation of the Remedial Design/Remedial Action Construction Workplan for Landfill Capping for Cleveland Hopkins International Airport New Runway 6L-24R Stage II, NASA South 40 ROD Requirements (June 2003) to ensure the work was conducted in accordance with the approved work plans. This work included providing construction oversight as the new runway was extended atop the landfills capped under this project.

May 2000 to January 2002, Environmental Specialist, Middough Associates Inc. As an Environmental Specialist, Mr. Pacer's responsibilities included performing several ASTM Phase I and II Environmental Site Assessments, the development of pollution prevention plans and conducting Asbestos and Lead-Based Paint Building Surveys. Mr. Pacer's other duties included conducting RCRA Hazardous Waste Tank Inspections and AutoCAD drafting for the civil, mechanical, and process mechanical engineering departments.

August 1998 to April 2000, Chemist, Environmental Control Laboratories. As a chemist for Environmental Control Laboratories, Mr. Pacer's responsibilities included the processing of NPDES and RCRA hazardous waste samples for analysis. Mr. Pacer s other responsibilities included performing backup duties to the Sample Receiving Manager.

JACQUELINE M. GETSON

JUNIOR GEOLOGIST

RELEVANT SPECIALIZED EXPERIENCE

Ms. Getson launched her career in environmental consulting at SAIC in March of 2008. In her position as Geologist, she has provided support to multiple projects. Prior to her position at SAIC, she worked for The Ohio State University as a field technician during the summer of 2007. As a field technician, she surveyed and gridded a 33 hectare plot, performed in situ minirhizotron measurements, installed lysimeters, and installed and read dendrometer bands at the University of Michigan Biological Station.

While attaining her Master's degree at the University of Missouri, she acted as a teaching and research assistant in the Department of Geological Sciences. Her research focused in the field of experimental petrology in order to determine the effect of crystallization on liquid and magma viscosity. The research consisted of the synthesis and preparation of magma analog glasses and measuring their viscosities in viscometers. Her research included the installation, calibration, maintenance, repair, and operation of this instrumentation. This research experience emphasized the importance of correctly executed field, instrumentation, and research procedures which she has been able to apply to the environmental concerns and projects she has supported thus far at SAIC.

EDUCATION

M.S. Geology, 2006

B.S., Geology, 2004

TRAINING

OSHA 40-hour HAZWOPER Training

OSHA 8 hour Hazardous Waste Supervisor Training

Site Specific Radiological Worker training at Harshaw, JPG, and NFSS

UXO/OE/CWM Safety

DOT/IATA

CPR and First-Aid Certified

March 2008 to Present, Geologist, SAIC. Ms. Getson has supported USACE Buffalo District on the Waste Characterization and Remedial Investigation Addendum at the FUSRAP Niagara Falls Storage Site (NFSS). She participated in the proposal effort, plan writing, and the field work for these tasks. During the proposal effort her primary task was to develop the lab cost for both field efforts. She communicated with key personnel within SAIC as well as the subcontracted laboratory and created usable spreadsheets that would be incorporated into the final submitted proposals. She participated in conference calls with the client as well as the internal risk committee.

Prior to mobilization Ms. Getson supported the plan writing for the tasks performed at NFSS from October to December of 2009. Ms. Getson wrote, edited, and produced large portions of the RI Waste Characterization Plan, Legacy Waste Characterization Plan Addendum, and RI Addendum Sampling and Analysis Plan. Throughout this process she participated in conferences with the client, communicated with SAIC personnel during the ITR process, and resolved plan comments from the ITR and client review. Ms. Getson also produced hard and electronic copies of the drafts and final, which were shipped to the client on time.

During the NFSS field work, Ms. Getson supported all of the tasks performed at NFSS by SAIC. In October, she participated in the RI waste characterization by sampling the RI waste. From November 16 through December 23, Ms. Getson primary role at NFSS was support to the lead geologist during the installation and sampling of 23 temporary well points (TWPs). Ms. Getson logged and sampled soil during the installation of the TWPs with a hollow stem auger. This included collecting geotechnical sampling using Shelby tubes. She sampled the TWPs for groundwater screening samples and permanent groundwater sampling using both peristaltic pump and bailer sampling methods. Ms. Getson also participated in the abandonment of a subset of the TWPs. As needed, Ms. Getson supported the Legacy waste sampling that was being conducted onsite at the same time. Ms. Getson supported the sample management for all of the projects.

Additional projects Ms. Getson supported throughout the year include CHIA, RVAAP, and Harshaw. Ms. Getson supported the monitoring station and outfall sampling at the Cleveland Hopkins Airport as needed. At RVAAP, she participated in the final quarter of groundwater sampling for the Sharon Conglomerate using bladder pump technique for deep wells. For the Harshaw Chemical Site FUSRAP project Ms. Getson participated in the annual groundwater sampling. Additionally she began supporting the Feasibility Study and attended the Technical Project Planning (TPP) meeting in January.

Since starting at SAIC, Ms. Getson has supported projects for multiple clients including the United States Army Corp of Engineers (USACE), Environmental Chemical Corporation (ECC), the CLE, and the NASA GRC. Ms. Getson has assisted on many technical writing efforts. She has supported the completion of the 2009 Remedial Investigation Report (RIR) for the Former Harshaw Chemical Site. Her primary task was to consolidate the 2006 RIR, Phase III Addendum and Phase IV data, which included writing new sections, creating tables, and managing updates. She also performed quality assurance on GIS sheets and figures and document formatting. In addition, she participated in PDT calls and comment resolution.

Ms. Getson continues to provided general support for ongoing Harshaw projects including formatting Excel tables for Access entry, entering data qualifiers into the Access database, and indexing the Harshaw project files for close out.Ms. Getson assisted in writing the project plans for ECC for the LOOW underground storage tank removal. She primarily focused on the Sampling Analysis Plan, but also assisted in the Work Plan and Health and Safety Plan. Ms. Getson has also supported the Tinker Air Force Base modeling project. Her primary task was to perform lithology picks from georectified gamma logs for on and off-section wells. She georectified gamma logs as well as performed quality assurance on the gamma logs and lithology picks.

The major field projects Ms. Getson has supported includes: sampling at the Former Harshaw Chemical Site, the Jefferson Proving Grounds (JPG), the NASA GRC Buildings 131 and 104, and at the CLE. Ms Getson's first field effort with SAIC was at the Former Harshaw Chemical site in Cleveland, Ohio. At Harshaw she gained experience with split spoon sampling on a Hollow Stem Auger in conjunction with performing soil descriptions and writing soil boring logs while installing monitoring wells. She developed and sampled the newly installed wells using the peristaltic pump method. She also participated in pre-mobilization, demobilization, and sample management efforts.

At JPG in Madison, Indiana, Ms Getson composed part of a two personnel team that sampled 47 monitoring wells from October 6-29th. Primary sampling methods used included Fultz pump and bailers. She also prepared the samples for shipment including acidification and performed the majority of the infield sample management. Upon completion of the monitoring well sampling, she assisted in soil sampling for the removal of depleted uranium penetrators.

At NASA GRC, Ms. Getson supported a BUSTR project where she performed soil descriptions and boring logs using a Geoprobe in order to delineate and define the nature and extent at Buildings 131 and 104 including installation of monitoring wells. The soil sampling at NASA GRC required PID headspace readings and utilized acetate liners. She also developed and sampled the six monitoring wells using bailers.

Additional projects Ms Getson has supported include those at CLE and Barberton, Ohio. At CLE she participated in the Monitoring Station Task, and the Outfall Sampling Task. In Barberton she developed and sampled, using bailers, monitoring wells. She also provided general support including sample management.

MICHAEL S. PASSIG, CHP, NRRPT

CERTIFIED HEALTH PHYSICIST

RELEVANT SPECIALIZED EXPERIENCE

Mr. Passig has over 23 years of experience in the health physics field, initially with the U. S. Naval Nuclear Power Program, and currently with SAIC. Mr. Passig's work in the health physics field has included tasks related to radiochemistry of a PWR, coverage of normal operations and maintenance tasks for a PWR, internal dosimetry programs, external dosimetry, ES&H supervisor for field activities at a major remedial action project in St. Charles, Missouri, training/training supervisor, environmental monitoring programs, and ALARA program management. Mr. Passig currently holds the position as Sr. Health Physicist.

EDUCATION

B.S., Radiation Protection Science, 1996

CERTIFICATIONS

ABHP Certified Health Physicist, 1998

Registered Radiation Protection Technologist, 1995

TRAINING

MARSSIM, 1999

RESRAD/RESRAD-Build, 2000

OSHA 40-Hour HAZWOPER, 1992

August 2007 to Present: Project Manager, SAIC. Mr. Passig is currently Project Manager the Verification/Characterization Task on the St. Louis FUSRAP Program. Mr. Passig is responsible for managing execuation of $2.5M/year of environmental sampling required for implementation of characterization and verification tasks. Mr. Passig is also responsible for delivery of project planning and reporting documents associated with the project.

February 2006 to December 2007: Technical Manager, SAIC. Mr. Passig is currently one of two Technical Managers in the St. Louis office primarily responsible for managing all technical execution of work being conducted in the St. Louis office, technical/quality of all deliverables, keeping up with technological advances, maintaining SAIC's competitive edge, and building/maintaining an internal SAIC network.

April 2003 to present: Program Manager, SAIC. Mr. Passig is currently responsible for management and business development for all Environmental projects related to the CERCLA and radiological cleanup at the Hematite Site. Mr. Passig has managed or is currently managing the following projects at the site: Gamma Survey, Kd Study, Remedial Investigation, DCGL Derivation, Wetlands and Surface Water Assessment, QA Support, MARSSIM Support Services, and Wastewater Treatment Plant Modification Design Build and Construction.

January 1999 to June 2006: Radiation Safety Officer, SAIC St. Louis office. Mr. Passig was previously responsible for radiation protection program (RPP) management, including internal dosimetry, external dosimetry, training, records management, and all other aspects of the RPP. Mr. Passig's article on internal dosimetry for uranium was published in Radiation Protection Management magazine. Mr. Passig provides miscellaneous Health Physics Consultation Services and Project Management to several FUSRAP sites , governmental agencies, and commercial clients ranging from RPP development, annual program audits, procedure development, dos/risk assessment and other health physics related issues. Work at client sites other than St. Louis FUSRAP include: NASA Glen Research Center, NASA Plum Brook Reactor Facility, Southeast Missouri State University, Nucor-Yamato Steel Corporation, Missouri Department of Natural Resources, Niagara Falls Storage Site, Harshaw Chemical Plant Site, Former Gulf States Steel Corporation, Stattuck Denver Radium Site, Jefferson Proving Grounds, and Westinghouse Hematite Site.

Mr. Passig is responsible for MARSSIM Implementation including final status survey plan development, field implementation of the final status survey plan, and site closure document preparation for release of land areas and structures in accordance with MARSSIM methodologies. Mr. Passig manages or has previously managed health and safety professionals in the development and implementation of the St. Louis and Buffalo District FUSRAP Environmental Monitoring Program including site perimeter and critical receptor air monitoring, low-volume and high volume radioactive air particulate monitoring, radon/radon progeny monitoring, perimeter gamma radiation monitoring, assured compliance with the NESHAPS, development of the annual NESHAPS report and EPA required Annual Environmental Monitoring and Data Analysis Report.

Mr. Passig's duties also includes dose/risk assessment scenario development, reviewing and/or calculating radiological dose and risks associated with radionuclides using the latest industry methodologies (e.g., RESRAD, RESRAD BUILD). Recently provided technical support and project management of the DCGL Derivation Project at the Westinghouse Hematite Site. Also provided technical support and project management for a study at the Westinghouse Hematite Site that determined site specific distribution coefficients (Kd values) for all potential radiological constituents of concern at the site. Currently conducting another study of transuranic radionuclides potentially present at the site to determine if they are significant dose contributors to the modeled receptor as defined by NRC regulatory guidance.

September 1998 – January 1999: Industrial Hygienist for the Boeing Company. Mr. Passig was responsible for design and implementation of all safety related training for over 10,000 employees working in an aircraft assembly/manufacturing setting. Mr. Passig was also responsible for providing assistance to other staff Industrial Hygienists with regard to program development, implementation and maintenance.

March 1993 – September 1998: Health Physicist/Industrial Hygienist for Jacobs Engineering Group at the Weldon Spring Site Remedial Action Project (WSSRAP). Mr. Passig was responsible for administering site Radiation Safety and Industrial Hygiene Programs for staff of over 500 personnel during demolition and remedial action activities, performing surveillances to ensure compliance with site ALARA, respiratory protection, air monitoring and dosimetry programs, OSHA and DOE regulatory requirements, and designing and conducting radiation safety and all applicable OSHA required training.

August 1992 – March 1993: Health Physics Specialist at the WSSRAP. Administered site Radiation Safety and Industrial Hygiene Programs for staff of over 500 personnel during demolition and remedial action activities. Performed surveillances to ensure compliance with site ALARA, Respiratory Protection, Air Monitoring and Dosimetry programs, OSHA and DOE regulatory requirements.

May 1992 – August 1992: Health Physics Specialist at the Madison Site Remedial Action Project. Administered Site Radiation Safety and Industrial Hygiene Programs for staff of over 50 personnel during demolition and remedial action activities. Performed surveillances to ensure compliance with site ALARA, Respiratory Protection, Air Monitoring and Dosimetry programs, OSHA and DOE regulatory requirements.

January 1992 – May 1992: Senior Health Physics Technician at Callaway Nuclear Plant. Provided technical health physics support during a refueling/maintenance outage period. Responsibilities included ALARA briefings, work activity surveillances, and personnel decontamination.

November 1986 – January 1992: Engineering Laboratory Technician (ELT) for the U.S. Naval Nuclear Power Program Onboard a nuclear ballistic missile submarine. Scheduled, coordinated, and supervised activities for a 4 person health physics staff that maintained plant chemistry control and administered the radiation safety program for the nuclear plant. Responsibilities included radiation safety training, radiochemistry analysis and evaluations, external dosimetry monitoring program and the ALARA program. Qualified as Lead ELT.

CRAIG LASKOWSKI

ENVIRONMENTAL ANALYST MANAGER

RELEVANT SPECIALIZED EXPERIENCE

Mr. Laskowski has utilized his background in environmental, health, and safety compliance and information technology to support and lead a variety of compliance and data management projects over the past 17 years. He is familiar with regulatory programs affecting air, water, waste and OSHA. His experience includes project management, database management, client development, and extensive client management. Areas of expertise include the following:

- Information Systems Requirements, Design and Data Management
- Environmental Compliance Air, Water, and Waste
- Health & Safety Compliance
- CERCLA and RCRA Regulatory Programs

EDUCATION

B.S., Environmental Health, 1992

COMPUTER PROFICIENCY

Operating Systems: Microsoft Windows 95, 98, 2000, XP

Unix Oracle

Database Oracle SQLPlus , Microsoft SQLServer, Microsoft Access, FoxPro

Software Microsoft Office Suite

Crystal Reports

Business Objects Reporter, Designer, and Supervisor

Essential Technology's PlantWare v1.6 and EH&S

Feith Document Management Software

7/2001 to current, Systems Analyst, Science Applications International Corporation. Mr. Laskowski currently serves as a team member on the development and build of the Air Emissions Compliance Assurance Data Management System for a large Steel Plant in Indiana. The goal of the application being developed is to define, document and map the methodologies which Burns Harbor uses to capture and process air emissions data. The tasks include building a system to electronically gather fuel usage and production information from meters and other tracking devices to automatically populate a database used to calculate air emissions for the facility. This system will reduce the amount of manual entry needed and allow further analysis of emission reduction remedies for the company. Mr. Laskowski serves in a technical leader role where he works with a team of users to gather requirements to build an effective tool. He also is leading the development of the reporting module.

Mr. Laskowski also is currently a team member on a data migration project for a large aluminum manufacturer in Tennessee. The migration project involves migrating the environmental database currently in production to a corporate server. The process involves writing stored procedures to extract and load the data between database instances, testing new report structures and data loading software, and develop the client directed documentation. Also in this role Mr. Laskowski is responsible for training users on the reporting and data uploading modules SAIC supports.

Mr. Laskowski has been involved with the development and management of environmental database systems for several large federal facilities in Ohio, Indiana, and Texas. For many of these sites, he has developed database programs that provide rapid data analysis and reporting capabilities.

Mr. Laskowski served as Task Manager on a project tasked to develop a user-friendly web-based database management tool to provide an environmental staff at an aeronautical space company access to historical CERCLA data, including analytical data and site-specific remediation goals. The database was populated using data generated in support of the remedial investigations, feasibility studies, and remedial actions implemented at the facility.

Mr. Laskowski is also serving as database manager for a Remedial Investigation for a FUSRAP site in northeast Ohio. Tasks include interfacing with lab during development of lab's first XML based EDD generation, loading both lab generated as well as onsite BEGe Radiological Compounds Data data, and verification qualifiers. The data is loaded into the database and extracted for analysis, mapping, and reporting to the client.

This project also allowed Mr. Laskowski to assist in the development of database modules used to track radiological building scan, smear and fixed point data used in the Building Survey Report for the project.

The Remedial Investigation Report phase of this project allowed Mr. Laskowski to build modules to provide data for the GIS mapping and also Data Summary tables that support the findings of the investigation. A suite of reports were built to report chemical and radiological sample results for constituents of concern for groundwater, surface water, soil, and sediment media.

Mr. Laskowski has also participated as a team member on an implementation of a COTS software package for a large pharmaceutical manufacturer. This implementation allowed the client to demonstrate compliance with Title V and associated MACT requirements, including the National Emission Standards for Hazardous Air Pollutants for Pharmaceuticals Production 40 CFR Part 63 Subpart GGG, National Emission Standards for Hazardous Air Pollutants: Offsite Waste and Recovery Operations 40 CFR 63 subpart DD, and Hazardous Waste Combustion 40 CFR Part 60, 261, and 270.

Also, included in this implementation was the development of a data warehouse and reporting application utilizing Business Objects as the presentation layer for a large pharmaceutical manufacturer. The presentation layer included approximately 40 standard reports that include emissions, limit comparisons, and compliance certification reports. The application has greatly increased the client's ability to meet agency and adhoc reporting requirements.

Mr. Laskowski also has assisted a large paint manufacturer support their Environmental and Industrial Hygiene software packages. Tasks included: installation of software, maintenance of several custom and off the shelf software package implementations, assistance with custom report troubleshooting and emission calculations for environmental and sample entry for IH software implementations, and general EH&S information management support

In addition to software support, Mr. Laskowski has lead a team of SAIC and client staff members in the development of the Batch Profile software system and Enhanced HPCOR2 Functional Specification document. This document is currently being used to provide the requirements for a Custom Batch Emissions software package developed by staff consultants.

Mr. Laskowski served as Project Manager for a software application development project for a large integrated automobile manufacturer in Ohio. The application developed has largely automated the process of getting material usage and production data into the existing environmental management information system already in place. The integration of SAIC designed and built custom systems with the existing COTS application has improved the overall solution efficiency, business value and provided a substantial ROI competitive with other IT projects.

In addition to developing the data entry application for the automobile manufacturer, Mr. Laskowski has also implemented an SAIC developed data warehouse tool (ARQ") for the client. The client utilizes Business Objects as their corporate reporting solution. Upon completion the report suite will include approximately 50 reports ranging from general validation lists to complex emission reports. The addition of ARQ will allow the client to demonstrate compliance with both federal and state regulations, including Title V, RACT and NSPS requirements for Automotive and Light-Duty Trucks.

Mr. Laskowski has also assisted in the deployment of an SAIC designed and built Environmental and Safety Audit software application for a major consumer and industrial chemical products manufacturer with multiple facilities throughout North America. During this project, Mr. Laskowski completed tasks related to deploying custom reports, creating a sustainable system for installing and maintaining the application and transferring this system to client ownership, and supporting the application during initial deployment.

Mr. Laskowski also acted as lead data analyst for groundwater and NPDES monitoring on a large federal project in St. Louis. This effort was responsible for integrating field data collected from groundwater and storm water sampling with algorithms used to schedule sampling and analytical results reporting. Mr. Laskowski also designed solutions that enable data to be electronically captured and loaded into the system, improving the existing manual data entry procedures. Combining his knowledge of EH&S compliance with his IT experience has improved the efficiency of many people working on the federal project enabling SAIC to deliver greater value to our client.

10/1997 to 7/2001, Senior Analyst, The Sherwin-Williams Company. Mr. Laskowski was responsible for system design, development, implementation, deployment, and technical management of growing system solutions for Environmental, Health and Regulatory Services business requirements. He acted as Project Manager for the implementation of air emission, waste tracking, and industrial hygiene data managing systems for over 30 facilities. He also contributed to the implementation of a document management system for Environmental, Regulatory, Legal, and Human Resources departments.

4/1995 to 10/1997, Environmental Consultant/Manager of Compliance Group, Merit Environmental Management, Inc. In this position, Mr. Laskowski was responsible for Implementation of Compliance plans to meet business requirements and compliance requirements in Forging and Coating Operations. Also, Mr. Laskowski completed Title V Permit Applications for the following industries: Printing, Coating, Forging, and other manufacturing facilities. Mr. Laskowski also was the Project Manager for the completion of SARA 311, 312, 313, Hazardous Generator, & Cleveland Locator Reporting for a variety of manufacturing facilities.

6/1994 to 4/1995, Environmental Consultant, Envisage Environmental Incorporated. Mr. Laskowski worked on various air compliance projects including, the completion of BAT and VOC RACT Studies for VOCs and particulate, development of inventory control and emission tracking program for a plastics manufacturer, and completion of Title V Emission Inventory Studies: rubber, plastics, metal handling and chemical manufacturers.

2/1993 to 6/1994, Environmental Specialist, SIFCO Selective Plating. Mr. Laskowski was responsible for overseeing the operation of all waste disposal/waste minimization equipment and maintenance of required operations data and

documentation. He was also responsible for the completion of SARA-313 Toxic Inventory Release Report, as well as, SARA Title III, Section 302/303 Hazard Inventory Report. In addition to the above-mentioned tasks, Mr. Laskowski assisted with the maintenance and processing of all inventory records, collection of chemical/environmental/operations data, and waste minimization programs.

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SHARON K. ROBERS

HUMAN HEALTH RISK ASSESSOR

RELEVANT SPECIALIZED EXPERIENCE

Ms. Robers has more than 20 years experience in environmental management with a focus on risk assessment. She has provided support to environmental clean-up, permitting, and management at Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), state brownfields, and Resource Conservation and Recovery Act (RCRA) sites. This support has included Remedial Investigations (RI)/RCRA Facility Investigation (RFI) site characterizations, removal actions, risk-based prioritizations, remediation, land development, and the permitting of nine hazardous waste, mixed radiological and chemical waste, and combined municipal and hazardous waste thermal treatment systems in the United States and United Kingdom.

Ms. Robers has supervised and conducted risk assessments for large multi-site remediation projects for DOE, DOD, and private industry. Ms. Robers project experience ranges from small (<2acres) wood treatment facilities to complex, multi-site facilities including military bases, large chemical manufacturing facilities, and multi-unit waste treatment facilities. Ms. Robers has provided litigation support for corporate liability for remediation of historical sites and toxic tort cases involving occupational exposures, chemical releases from transport accidents, and incinerator permitting. Ms. Robers has provided product licensing support for chemical additives for rubber manufacturing.

Ms. Robers has represented clients and participated in negotiations with EPA Regions 2, 4, 5, 6, 9, and 10, Ohio EPA, New Jersey Department of Environmental Protection (NJDEP), Indiana Department of Environmental Management (IDEM), Kentucky Department of Environmental Protection (KDEP), Michigan Department of Environmental Quality (MDEQ), Georgia Environmental Protection Division (GAEPD), North Carolina Department of Environment and Natural Resources (NCDENR), Texas Commission on Environmental Quality (TCEQ, formerly TNRCC), California EPA (CalEPA), Vermont Department of Environmental Conservation (VDEC), Washington State Department of Ecology (Ecology), Ontario Ministry of Environment (OEM), British Department of Environment (DoE), and various local agencies.

EDUCATION

M.S. Marine-Estuarine-Environmental Science, 1989.

B.S. Biology, 1982

TRAINING

Groundwater Technology

Computer Aided Fate and Transport Modeling in all media using PCGEMS, University of Wisconsin

40-Hour Occupational Safety and Health Administration (OSHA) training (29 CFR 1919.120), 1989 with 8-Hour Refresher 1990 to present

2000 to 2007 and 2009 to Present, SAIC Ms. Robers is responsible for managing and conducting human health and ecological risk assessment projects. She provides support to CERCLA RI and Feasibility Studies (FS) for Army Corps of Engineer and DOD sites in North Carolina, Ohio, Kentucky, New Jersey, Texas, Vermont, and Washington State. These sites include a variety of contaminants including inorganics (e.g., arsenic and lead), organics (e.g. polynuclear aromatic hydrocarbons), and radionuclides in soil, surface water, and groundwater.

2007 to 2008: United States Peace Corps. The Gambia West Africa, Volunteer. Ms. Robers worked in conjunction with the Taiwanese Technical Mission and The Gambian government to (1) develop a demonstration aquaculture project for research of appropriate technology for the region, (2) conduct aquaculture training program to teach Gambian technicians for commercial fish farming and to teach Gambian farmers to operate small-scale fish ponds and fish/rice co-culture and (3) assist The Gambian Department of Fisheries to develop a national aquaculture strategy for The Gambia.

1996 to 2000: Mclaren-Hart Inc., Senior Scientist. Ms. Robers provided due diligence support for property transfers and brownfield redevelopment of contaminated industrial properties, RCRA investigation and remediation for industrial and chemical manufacturing facilities, and CERCLA investigation and remediation for historic sites including hazardous waste and municipal landfills. Ms. Robers provided product licensing support in the form of risk evaluation for chemical additives to rubber for review by a Japanese permitting authority. Ms. Robers also provided litigation support for toxic tort cases involving occupational exposures, chemical releases from transport accidents, and incinerator permitting.

1993 to 1996: DASKR Inc. Through a contract with Lockheed Martin Energy Research Corporation (formerly Martin Marietta Energy Systems Inc.) Ms. Robers developed new risk assessment methodologies for use in the decontamination and decommissioning (D&D) of buildings contaminated with mixed chemical and radiological waste.

1989 to 1993: IT Corporation, Risk Scientist. Ms. Robers served as task manager and provided varying levels of risk assessment support to RCRA investigation and remediation for pharmaceutical and chemical manufacturing facilities, other industrial facilities, and military bases. Support to hazardous waste sites included RI/RFI baseline risk assessments, removal action risk support, clean-up level development, and remedial alternative risk evaluation.

1983 to 1985: W.R. Grace Washington Research Group. Research Technician. Research projects included development of a thermal adhesive and an environmentally safe corrosion inhibitor to replace the use of hexavalent chromium. Responsibilities included design and implementation of experiments, preparation of chemical formulations, and analytical chemistry.

ELLEN RAGER

TECHNICAL EDITOR

RELEVANT SPECIALIZED EXPERIENCE

Ms. Rager is has 7 years experience in the technical editing and proposal coordination field. She has written, edited, formatted, and produced various reports and proposal packages for SAIC.

Technical Editor

As a technical editor for SAIC, Ms. Rager performs a thorough editorial review of each document assigned to her; edits the writing to increase its effectiveness for the reader; checks for consistency, editorial accuracy, spelling, and grammar; creates bibliographies; formats the document to comply with client standards; creates a table of contents and various table, figure, equation, and acronym lists for the documents; and produces the document both in hard copy and electronic formats.

Ms. Rager has performed the full range of editorial responsibilities described above and worked with the project managers to ensure a timely and quality delivery of the documents assigned to her.

EDUCATION

B.A. Technical Communication, 2003

COMPUTER PROFICIENCY

Microsoft products including: Access, Excel, FrontPage, PowerPoint, Project, Publisher, Word, Visio.

Adobe products including: Acrobat, Illustrator, InDesign, Photoshop

Macromedia products including: DreamWeaver, Flash

Bay Delta Conservation Plan

Ms. Rager is the lead editor and document production specialist for the Bay Delta Conservation Plan. She is managing a team of editors, word processors, graphic artists, and document production for this 8,000 page report.

BWXT Pantex

Ms. Rager was responsible for editing, formatting, reviewing, and producing documents for the BWXT Pantex client. She also assisted in the preparation of materials for visualization meetings with the client. Ms. Rager created a comprehensive style and design guide to standardize all documents going to the client.

Cleveland Hopkins International Airport

Ms. Rager assisted project managers with editing, formatting, reviewing, and production of documents for the Cleveland Hopkins International Airport client.

Former Harshaw Chemical Site

Ms. Rager is currently responsible to assist project managers in editing, formatting, reviewing, and production of documents for the United Army Corps of Engineers for the Former Harshaw Chemical Site.

NASA

Ms. Rager is currently responsible to assist project managers with editing, formatting, reviewing, and production of documents for the NASA client. Ms. Rager created a comprehensive style and design guide to standardize all documents going to the client.

Ravenna Army Ammunition Plant

Ms. Rager is currently responsible to assist project managers in editing, formatting, reviewing, and production of documents for the United States Army Corps of Engineers for the Ravenna Army Ammunition Plant. She is also responsible to ensure reports adhere to the *Ravenna Army Ammunition Plant Deliverable Document Formatting Guidelines* for both hard copy and electronic versions of the report. Ms. Rager created a comprehensive style and design guide to standardize all documents going to the client and also created a document production guide to easy the production process.

Community Relations Work

Ms. Rager works on Community Relations tasks for clients to communicate information between the client and the public. Ms. Rager plans public meetings, creates posters and display boards, fact sheets, PowerPoint presentation, brochures, multi-volume newsletters, press releases, and other materials to communicate to the public. Ms. Rager has worked on and assisted with task management for community relations tasks for U.S. Army Corps of Engineers – Louisville District; U.S. Army Corps of Engineers – Buffalo District (two different sites).

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HEATHER ANN

TECHNICAL EDITOR

RELEVANT SPECIALIZED EXPERIENCE

Ms. Ann is a technical editor at the Twinsburg, Ohio office of SAIC. As a technical editor, she is responsible for the editing, formatting, and hard copy and electronic copy production of deliverable documents. Ms. Ann also provides editorial support for proposals

EDUCATION

M.A. Slippery Rock University, 2003

B.A. Ohio Northern University, 2001

COMPUTER PROFICIENCY

Microsoft Office 2003, 2007
Adobe Acrobat versions 8.0 and 9.0

June 2008 to present – Technical Editor, SAIC. As a technical editor for SAIC, Ms. Ann performs a complete editorial review of each deliverable document, including:

- Checking for correct spelling and grammar;
- Editing writing for most effective delivery to audience;
- Constructing acronym lists and providing definitions;
- Constructing table of contents and lists of tables, figures, and photographs;
- Formatting all text, tables, headers and footers, and attachments and appendices;
- Ensuring consistency in language, labeling, and formatting throughout the document; and
- Ensuring document complies with client style, language, and content preferences.

In addition to the editorial process, Ms. Ann is also responsible for the hard copy and electronic copy production of each deliverable document, including ensuring quality documents are delivered to the client when expected.

Camp Perry, Ms. Ann is currently responsible for assisting Project Managers in editing, formatting, and production of documents for the Ohio Army National Guard, Camp Perry Training Site Client. She has performed these duties for the *Draft Removal Action Construction Report for the Orphan Dump Site.*

Former Harshaw Chemical Site, Ms. Ann is currently responsible for assisting Program Manager in editing, formatting, and production of documents for the United States Army Corps of Engineers, Buffalo District for the Former Harshaw Chemical Site. Ms. Ann has performed these duties for the *Former Harshaw Chemical Site Remedial Investigation Report Revision 1, Drafts 0 and 1* documents.

Former Lake Ontario Ordnance Works, Ms. Ann is currently responsible for assisting Program Manager in editing, formatting, and production of documents for the Environmental Chemical Corporation (ECC) client. Ms. Ann has performed these duties for the *Former Lake Ontario Ordnance Works Underground Storage Tank Removal and Site Closure Work Plan, Revision 0 and Draft 0* documents.

NASA, Ms. Ann is currently responsible for assisting Project Managers in editing, formatting, and production of documents for the NASA GRC and NASA PBS client. Ms. Ann has performed these duties for the following documents:

- Construction Report for South 15
- Design Submittal for Boiler House and Tanks Demolition
- NPDES Mercury Variance Sampling and Analysis Plan
- PBS Scheid Road Geotechnical Investigation Report
- Revised Final Addendum to Central West Work Plan
- 100% Design Submittal for Central West Area

Ravenna Army Ammunition Plant, Ms. Ann is currently responsible for assisting Project Managers in editing, formatting, and production of documents for the Unites States Army Corps of Engineers, Louisville District for the Ravenna Army Ammunition Plant. Additionally, she is responsible for ensuring all documents meet formatting and production guidelines, including PDF accessibility, outlined by the client. Ms. Ann has performed these duties for the following documents:

- Records of Decision for Load Line 12 and Ramsdell Quarry Landfill
- Sampling and Analysis Plan for Groundwater at Load Line 12
- Work Plan and Sampling and Analysis Plan for Sharon Conglomerate Wells
- Project Management Plan for PBA 2008
- Quality Assurance Project Plant for PBA 2008
- Removal Action Report for Central Burn Pits

- RI Report Addendum No.1 for Central Burn Pits
- Sampling and Analysis Plan for PBA 2008
- Proposed Plan for Soil and Dry Sediment at Central Burn Pits
- Remedial Investigation/Feasibility Study documents for 18 areas of concern included in the PBA08 contract

ENERGY SOLUTIONS Resumes

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JOHN R. NORTH, Ph.D.

Education/Qualifications:

Ph. D (1990) and M.S. (1985), Agricultural Engineering, University of Illinois, Urbana-Champaign, IL

B.S., Chemistry, Illinois State University, Normal, II, 1978

Employment History:

2006 to Present:
Energy*Solutions*

Test Engineering Manager, Salt Waste Processing Facility Project, Aiken, SC.

Dr. North is responsible for the planning, management, and execution of various testing activities to support the design, startup, commissioning, and operation of a facility to treat the high level radioactive salt wastes currently stored in tanks at DOE's Savannah River Site.

2000 to 2006:
Energy*Solutions* (formerly Duratek Federal Services)

Project Manager Silos 1&2 Full-Scale Remediation Fluor Fernald Inc., Fernald Closure Project, Ross, OH.

The Silos 1 and 2 Full-Scale Remediation project was one of the critical path projects to achieve closure of the Fernald site, a former DOE ore-processing facility in southwestern Ohio. Dr. North's primary role was been project manager, including fiscal responsibility and accountability for his project, plus two other silos projects (as control account manager, or CAM). He was intimately involved in the design of the treatment facility and processes, the design of waste containers and transport systems, and the conduct of various testing programs to support the designs. He also provided significant oversight of the post-construction activities associated with the start-up testing of the facility, the readiness review process, and ongoing plant operations. Waste treatment operations were safely completed in March 2006 in support of the aggressive site closure schedule.

Relevant Experience

- 30 years of experience in the performance and management of complex remediation programs that included hazardous, toxic, radiological waste remediation, chemical weapons demilitarization, and research and development of complex treatment processes for HTRW.
- The Project Manager for the development and processing of the K-65 waste at the Fernald site.
- The Engineering Manager for Operations Bechtel Aberdeen, at Aberdeen Proving Grounds, MD
- Technical Manager, Waste Management International/ Enviropace Ltd., Chemical Waste Treatment Center, Hong Kong SAR, China.

1998 to 2000:
Bechtel Aberdeen, Aberdeen Proving Grounds, MD

Engineering Manager, Operations

This project consisted of the design, construction, startup, operation, and decommissioning of a facility to neutralize and biodegrade the mustard agent that has been stockpiled at the Aberdeen Proving Grounds since the mid-1940s. Some of the key members of the plant operations group, including Dr. North, were brought on to the project at its inception to provide input to the facility design and construction. Dr. North was responsible for managing the efforts of a group of system specialists/engineers as they provided input to the design, executed various testing programs, and began planning and preparing documents for the turnover, startup, testing, and operation of the various plant systems.

1996 to 1998
Waste Management International/Enviropace Ltd., Hong Kong SAR, China

Technical Manager, Chemical Waste Treatment Center

The Chemical Waste Treatment Center, operated by Enviropace Ltd. for the Hong Kong Government, is a comprehensive facility designed to effectively treat all of the hazardous (chemical) wastes generated within Hong Kong. Treatment processes include incineration, chemical oxidation /reduction, neutralization/precipitation, stabilization/solidification, evaporation/catalytic oxidation, materials recovery/recycling, and separations. Dr. North was responsible for the following functional areas and projects at the facility:

- Direct management of the analytical laboratory, waste approval, engineering, and technical support groups (approximately 35 persons).
- Final approval of treatment decisions for new waste streams and evaluation of more cost-effective treatment methods for existing wastes.
- Preparation of proposals for new plant processes/activities for submission to government regulatory agencies and the resolution of problems/disputes with the agencies.
- Evaluation and testing of alternative instrumentation/control technologies to improve the automation and safety of plant operations.
- Evaluation and testing of alternative treatment technologies to expand or enhance facility operations, including centrifugal separation, ion exchange, and metals/etchant recycling.
- Design and management of major process modification projects, including the reconstruction of the waste etchant treatment system (copper recovery and ammonia destruction from spent ammoniacal copper etchant solutions) and the construction of a new oil/water separation process for MARPOL (marine pollutant) wastes. Both projects completed in 1996.
- Design and project management for the implementation of a medical waste incineration program, including collection, transportation, storage, handling, feeding, and decontamination systems. Trial burn and initial design completed in 1996 with construction in 1999.

- Evaluation, testing, and implementation of pre-treatment processes and/or controlled-handling procedures for highly reactive/toxic/noxious wastes, such as ammonium nitrate, alkali metals, acidic cyanides, mercaptans, tear gas.

1994 to 1996
RUST Federal Services, Anderson, SC

Senior Process Engineer/Technical Manager, Clemson Technical Center

The Clemson Technical Center was a state-of-the-art facility designed for the testing and development of new and existing technologies for the treatment/disposal of hazardous and low-level radioactive wastes. Dr. North's responsibilities and contributions at the facility included the following:

- Design and management of bench and pilot scale treatability studies on radioactive and hazardous wastes, with primary emphasis on soil washing and vitrification technologies.
- Preparation of conceptual designs and capital/operating cost estimates for full-scale treatment systems based on scale-up from bench/pilot study results.
- Management of budgets and personnel and preparation of technical and cost proposals.
- Evaluation of new/alternative treatment technologies for hazardous/radioactive wastes.
- High level of interaction with DOE/DOD personnel and their contractors on treatability studies and cooperative development projects.

1993 to 1994
RUST Remedial Services/RUST Federal Services, Westchester/Geneva, IL

Senior Process Engineer

Dr. North was assigned to the corporate offices of these two Waste Management subsidiaries to provide technical support to fixed-facility and remedial operations and to manage/support the preparation of bids and proposals. Highlights/major project activities included

- Design, construction management, and field support (start-up and ongoing operations) of a VOC control/recovery system for a lagoon remediation project at the Exxon Baton Rouge refinery.
- Design, implementation, and field support for alternative condensate treatment systems for the X*TRAX thermal desorption remediation project at the ReSolve NPL site.
- Management/coordination of laboratory and pilot tests for a proprietary soil washing process targeted for use at the DOE Mound site in conjunction with Argonne National Laboratory and a corporate partner.
- Management of and/or technical support for numerous bids and proposals to government (DOE/DOD) and corporate clients.

1989 to 1993
Chemical Waste Management, Inc., Geneva, IL

Project Manager (1990-1993 /Chemical Engineer II (1989-1990)

Dr. North's scope of work for this group consisted of the design, development, testing, and evaluation of hazardous waste treatment technologies. Specific projects as well as other job functions included

- Design, construction, and on-site demonstration of a pilot scale PCB dechlorination system. Demonstrated successfully at the ReSolve NPL site in 1992.
- Design, construction, and on-site demonstration of a pilot-scale thermal desorption and stabilization system for the treatment of lagoon sludges. Demonstrated successfully at Robins AFB in 1993.
- Conceptual design, testing, and cost estimation for various site- or waste-specific treatment processes, including thermal desorption, lagoon dewatering, stabilization, and chemical destruction.
- Evaluation and/or laboratory testing of various treatment processes, including thermal desorption, soil washing, stabilization, and material handling.
- Preparation and review of numerous proposals and project-specific documents.

1982 to 1989
Department of Agricultural, University of Illinois, Urbana, IL

Teaching/Research Assistant

Dr. North was employed part-time by the university while pursuing his M.S. and Ph.D. degrees. Teaching assistant duties included the development, instruction, and administration of various courses within the Agricultural Engineering curriculum. Research assistant activities consisted of managing/conducting various projects and operations for the department including

- Management of a full-scale anaerobic digester for the treatment of swine waste at one of the university's research farms.
- Design and implementation of digester enhancements including an automatic control system, a medium pressure biogas storage system, and a dual-fuel intake system for an engine-generator set.
- Management of a departmental analytical laboratory and other smaller research projects.

PUBLICATIONS

North, J.R. and D.L. Day. "Experiences Testing Aerators for Odor Control." In: *Proceedings of the 1985 Livestock Waste Management Conference*. Department of Agricultural Engineering, University of Illinois, Urbana, IL. March 1985.

North, J.R. *Anaerobic Filter Treatment of Thin Stillage*. M.S. Thesis, University of Illinois, Urbana, IL. 1986.

North, J.R., C.B. Fedler, T.H. Chen and D.L. Day. "The University of Illinois Digester - Principles of Operation." In: *Latest Developments in Livestock Housing: Reports from the Seminar of the 2nd Technical Session of the CIGR*, held in Urbana, IL. American Society of Agricultural Engineers, St. Joseph, MI. June 1987.

Zhang, R., J.R. North and D.L. Day. "Operation of a Field Scale Anaerobic Digester on a Swine Farm." Paper presented at the *1989 International Winter Meeting of the American Society of Agricultural Engineers*, December 12-15, 1989, New Orleans, LA. ASAE Paper Number 89-6651. American Society of Agricultural Engineers, St. Joseph, MI.

North, J.R. *Feasibility of an Integrated Biogas Scrubber for a Swine Manure Digester*. Ph.D. Thesis, University of Illinois, Urbana, IL. 1990.

North, J.R. "Mishandling of Agri-chemicals: Regulatory Issues and Remedial Actions." Paper presented at the *1992 International Summer Meeting of the American Society of Agricultural Engineers*, June 21-24, 1992, Charlotte, NC. ASAE Paper Number 92-1088. American Society of Agricultural Engineers, St. Joseph, MI.

North, J.R. and L.L. Goodroad. "Pretreatment Options for Removing Organics from Mixed Low-Level Waste." Paper presented at the *1995 EPRI International Low-Level Waste Conference*, July 10-12, 1995, Orlando, FL. Electric Power Research Institute (EPRI), Palo Alto, CA.

AFFILIATIONS / AWARDS

American Institute of Chemical Engineers

American Society of Agricultural Engineers

USDA National Needs Fellow (1985 - 1988)

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James L. Barber, CHP, CHCM

Education/Qualifications:

- B.S., Applied Science/Technology, Radiation Protection Specialization, Thomas Edison State College, NJ, 1993
- A.S., Radiation Protection, Central Florida Community College, FL, 1985
- A.S., Science and Mathematics, Pensacola Junior College, FL, 1980

Training/Certifications:

- Certified Health Physicist, American Academy of Health Physics
- Certified Hazard Control Manager (inactive)
- National Registry of Radiation Protection Technologists (inactive)
- 40-Hour SARA/OSHA—8-Hour HAZWOPER Supervisor (inactive)
- DOE Radiological Worker II Training (inactive)
- Fernald Site-Specific Training and Awareness Briefings
- Silos Project-Specific Training and Awareness Briefings
- RESRAD Training
- Identifying, Reporting, Tracking, and Closing Price-Anderson Amendments Act (PAAA) Noncompliances
- Respiratory Protection – Basic and Advanced Training
- Monte Carlo N-Particle Visual Editor Training
- Root Cause Analysis

Relevant Experience

- Certified Health Physicist responsible for maintaining occupational exposures ALARA in a complex DOE radiological site closure environment
- In-depth understanding of radiological threats and mitigations for the Fernald Silos waste stream (K-65 uranium)
- More than 20 years of experience in Radiation Protection Program development and management
- Independent oversight to ensure implementation of exposure monitoring and control measures
- Expertise in Health Physics applied in radiological and nuclear design analysis, startup, and operations
- Additional experience in HP support for FSAs, CONOPS assessments, ORRs, RAs, and SSRs
- Expertise in the use of MicroShield (shielding/dose rate modeling) and RESRAD (probabilistic modeling) software

Employment History

2006 to Present:
Energy*Solutions*, Savannah River Site, Aiken SC

Radiation Protection Program Manager (RPPM)/ESH Integration Manager, Salt Waste Processing Facility (SWPF), Aiken, SC

Ensure ALARA requirements and objectives are met through incorporation of appropriate design features into the physical, structural, waste processing, and support system designs. Perform shielding and dose rate calculations, system operability, and conduct and maintainability reviews. Implement 10 CFR 835, *Occupational Radiation Protection* regulatory requirements.

Authored SWPF Radiation Protection Program (RPP), which was subsequently approved by DOE. Authored SWPF Final ALARA Design Review Report.

June 2007 to 2008
Energy*Solutions*

ESH/Radiological Control Manager, Moab UMTRA Project, Moab, Utah

Completed initial baseline scheduling along with development and delivery of contractually required documentation for DOE. Authored and submitted the Moab Radiation Protection Program (RPP) per 10 CFR 835, which was subsequently approved by DOE. Prepared and approved the Moab health physics technical basis documents and implementing procedures. Prepared and submitted 10 CFR 835 Radon exemption requests. Prepared and presented new training and qualification program material for radiological control personnel. Developed internal and external personnel monitoring programs and service provider contracts.

1997 to 2006
EnergySolutions (formerly Duratek Federal Services, Inc.)

Senior Health Physicist and Project Radiological Engineering/Control Manager, Fernald Silos Treatment Project, Fluor Fernald, Inc., Fernald, Ohio (2003–2006)

- Provided technical support and managed implementation of the site radiation protection program, ensuring optimization of ALARA principles. Interfaced with senior site management.
- Directed approximately 45 radiological engineers, radiological control supervisors and technicians from final ALARA design, construction, system operability testing, readiness assessments, start-up, operations, and safe shutdown of all Silos Project facilities. Specific facilities included the Radon Control System, Silo 3 Retrieval and Packaging Facility, and the Silo 1&2 Remediation Facility.
- Prepared the ALARA analysis and health physics plan for the Silos Project nuclear health and safety plan, which serves as the safety basis document for operations authorization. Completed a comprehensive design review of all radiological system operations and area configurations, performing dose projections, shielding calculations, airborne source term release, and personnel exposure modeling.
- Performed radiological dose projection analysis, assisting in the design for the final waste form conveyance configuration, ensuring compliance with DOT limits.
- Managed and maintained primary inline (3) real-time gamma spectroscopy waste characterization systems, and maintain Silos project personnel dose tracking system, ensuring radiological conditions and personnel exposures were within design expectations.
- Evaluated radiological monitoring data for post-incident and/or upset conditions, performing investigations, determining causal factors, and developing and verifying implementation of corrective actions.

- Developed site programmatic and project-specific radiological control technical basis documents, implementing procedures, and developed and instructed radiological control staff for training and qualification.

Radiological Program Compliance Assessor, DOE Fernald Silos Treatment Project, Fluor Fernald, Inc., Fernald, OH (1997–2003)

- Developed and maintained the site self-assessment program, performing analysis and oversight of all radiation protection functional areas including internal/external dosimetry, instrumentation, and field implementation.
- Performed comprehensive reviews and evaluations, ensuring regulatory compliance with respect to 10 CFR 835 and applicable DOE Orders.

2002 to 2006
Trinity Engineering Associates, Inc.

Senior Health Physicist (Self-Employed Consultant), Cincinnati, Ohio

- Provided health physics support for contract tasks associated with work for the Environmental Protection Agency (EPA) and National Institute of Occupational Safety and Health (NIOSH).
- Prepared final residual radioactive contamination report comprised of a list of 89 Atomic Weapons Employer (AWE) facilities.
- Performed and documented reviews of operations and radiological monitoring records associated with AWE facilities in an effort to validate specified covered periods (NIOSH/OCAS). Completed two residual radioactive contamination reports for publication.
- Developed radiological accident monitoring and exposure control training (RAMECT) for EPA.

1995 to 1997
Radian Corporation / Modern Technologies Corporation, Inc.

Senior Health Physicist, DOE Fernald Environmental Management Project, Fernald, OH

- Provided technical support in health physics and occupational safety and health to the Department of Energy (DOE) on a comprehensive spectrum of operational and compliance-based principles associated with environmental restoration activities.
- Performed technical evaluations of the Fernald Environmental Management Project (FEMP) Radiation Protection Program (RPP).
- Provided DOE with radiological program assessments, including evaluations of technical basis documents and procedures, ensuring implementation and compliance with 10 CFR 835 and DOELAP standards.
- Provided health physics support during facility safety assessments (FSA), conduct of operations assessments (CONOPS), operational readiness reviews (ORR), readiness assessments (RA), and standards start-up reviews (SSR).
- Performed field oversight for compliance with site-specific procedural requirements and provided recommendations to DOE on areas of potential program enhancement.

- Provided technical reviews of facility and operations ALARA design documents related to the Vitrification Pilot Plant, Thorium Nitrate Solidification Project, Mixed Waste Stabilization Project, Thorium Overpack Project, and the Uranium Repackaging Project
- Evaluated and provided recommendations for safety analysis reviews (SAR) for the Thorium Nitrate Solidification Project, Facility Safe Shutdown and Demobilization Project, Thorium Overpack Project, and the RCRA Mixed Waste Stabilization Project.

1986 to 1995
NSSI/Numanco/Duratek, Various Commercial Nuclear Power Plant Sites in U.S.

Health Physics Supervisor/Technologist

Served as health physics supervisor/radiological engineer and technologist. Performed evaluations of radiological monitoring data, conditions, and controls. Evaluated and controlled conduct of radiological work activities, ensuring regulatory and procedural compliance. Implemented "ALARA" principles and practices for radiological worker exposure reduction, contamination control, and waste minimization.

Provided radiological protection controls/coverage during reactor disassembly/refueling, steam generator and general maintenance, and special project outage activities. Measured operational performance through job-specific surveillance, radiological incident root cause analysis, and tracking/trending of ALARA indicators. Cooperatively developed enhancements of customers' radiological control program efficiency.

1977 to 1981
U.S. Navy

Honorable Discharge with Good Conduct Award

Isaac Diggs, Sr., P.E.

Education/Qualifications:

B.S., Physics/Mathematics, Virginia State University
M.S., Engineering Mechanics, University of Tennessee

Training/Certifications:

- 40-Hour OSHA HAZWOPER Training (29 CFR 1910.12) – refresher training scheduled
- 8-Hour OSHA Site Supervisor Training (29 CFR 1910.120) – current
- DOE Radiation Worker II Training – expired; will be renewed upon award
- Professional Engineer Registrations: TN, AL, GA, IA, IL, IN, KY, MA, MI, MN, MS, NC, OH, OK, WV

Employment History:

November 2009 to Present
Energy*Solutions* Federal Services, Inc.

Functions as the facility manager for on-going operations and activities in facilities at the DOE Portsmouth Site funded for environmental remediation and D&D under the American Reinvestment and Recovery Act (ARRA). Participate in project planning and performance document development and approval through the work control process while exercising oversight of project activities for compliance with DOE, state, and other federal regulatory criteria. Coordinate with and support task leads in developing options and corrective action strategies for issues potentially impacting successful execution of projects in assigned facilities. Perform the duties of the task lead as required/requested in the absence of the assigned task lead.

2003 to November 2009
Energy*Solutions* (formerly Duratek), Oak Ridge, TN

Director, Strategic Development for DoD Programs/Program Manager (2005-present)

Mr. Ike Diggs provides senior leadership in planning and coordination and advisory management in DoD programs development, execution, customer relations, and day-to-day program management. Serves as designated Program Manager for $314+M contract awards, including Ashtabula Section 312 (a) Maintenance and Dredging Project, the Buffalo MARC and Buffalo Health Phys-

Relevant Experience

- P.E. with 30 years experience in waste management, environmental restoration, and nuclear materials management in environments requiring management, control, and disposition of radioactive, hazardous, and toxic substances in accordance with CERCLA, RCRA, TSCA, and other environmental regulations.
- Managed $190 million in capital projects at Fernald to implement ES&H improvements at process plants and support facilities. Oversaw collection, sorting, packaging, shipping, and disposal of construction debris and LLRW, MW, and HW at NTS and Envirocare under RCRA and CERCLA.
- Former Program Manager for multiple USACE HTRW contracts, responsible for more than 140 projects involving generation, collection, management, packaging and disposal of contaminated soils, debris, legacy wastes and investigation-derived wastes regulated under RCRA, TSCA, and CERCLA.
- Managed USACE Cumberland River remediation project that included a waste collection and recycling center and an operations and staging area where river wastes and debris were sorted and packaged by waste type, then sent to appropriate TSDFs under RCRA and other regulations.

ics Technical Support award to TES (the joint venture of TPMC and Energy*Solutions*). He also served as the task manager for the SAIC Niagara Falls Storage Site FS Technical Support Contract.

Project Manager, Oak Ridge Reservation Low-Level Legacy Waste Processing & Shipping (LLWPS); Bechtel Jacobs Company LLC, Oak Ridge, TN (2003-2005)

Mr. Diggs managed the receipt, treatment, and on- and off-site disposal of legacy low-level radioactive waste (LLW) generated by more than 50 years of defense production on the Oak Ridge Reservation (ORR). Duratek used its rad-licensed Bear Creek Operations treatment facility in Oak Ridge to sort, segregate prohibited items, and treat the waste for appropriate disposal, either on-ORR at a Duratek-managed CERCLA waste disposal facility (EMWMF) or off-site at the Energy*Solutions* LLW disposal site in Utah. Waste streams included dry active waste, scrap metal, and construction/demolition debris in B-25 and B-12 boxes, intermodals, roll-offs, and other DOT-approved strong-tight containers. Wastes that did not meet the Bear Creek facility's waste acceptance criteria were returned to the customer for treatment at an appropriately licensed facility.

Due to the potential hazards associated with opening sealed containers (many of which had been used as "Dempster Dumpsters" by ORR workers over many years), Mr. Diggs implemented a rigorous program to ensure worker safety while processing these waste streams. This included training in suspect item identification and handling, disposal site waste acceptance criteria, and beryllium sampling and decontamination procedures.

Mr. Diggs' leadership on the project contributed to the following performance highlights:

- Zero occupational injuries or transportation incidents and zero regulatory infractions over the life of the project.
- Duratek was first to receive a waste shipment for processing, just 17 days after award.
- Duratek was first to begin sustained waste sorting and segregating operations.
- Duratek was first to ship processed wastes for disposal.
- Duratek was first to develop State-acceptable protocols for disposition of non-conforming items.
- More than 6.5 million pounds of waste processed and shipped.
- More than 33,000 total project hours worked safely.
- Completed processing and shipment of all EMWMF-bound waste 2 months ahead of deadline.
- Managed superior waste tracking and reporting systems to support the end of project verifications and third party assessments.

1992 to 2003
Science Applications International Corporation (SAIC)

Vice President/Chief Engineer, Engineering and Environmental Management Sector (1996-2003)

As Deputy Corporate Engineer, developed and maintained the engineering infrastructure and systems required for effective management of the SAIC corporate engineering practice. Provided oversight and interpretive guidance to assure consistency in conduct of engineering activities in the company's Engineering and Environmental Management Sector. Led a major initiative to obtain corporate credentials to practice engineering in all 50 states.

Managed environmental engineering and A-E HTRW design services programs valued at more than $36M for USACE at installations and sites within the USACE Lakes and Rivers and South Atlantic Division boundaries. Managed all aspects of program technical, cost, and schedule performance for more than 140 separate projects with as many as 30 on-going simultaneously. Representative projects included RCRA corrective measure studies and remedial designs; CERCLA site investigations, feasibility studies, remedial designs, and construction oversight; collection, characterization, management, and disposal of investigation-derived and legacy wastes regulated under CERCLA, RCRA, and TSCA; waste and contaminated media remediation systems design and operation; and metals-contaminated soils remediation and disposal.

Provided program management, technical, and advisory support to the USEPA/DoD/DOE-sponsored Integrated Remediation Technologies Evaluation Program (IRTEP) Steering Committee. Participated in technology needs assessments and supported reviews of candidate technologies for inclusion in the IRTEP technology demonstration process.

Vice President/Division Manager, Environmental Services (1995-1996)

Managed an SAIC division of approximately 100 engineers and scientists providing environmental engineering, technical support, waste management, regulatory compliance, and environmental restoration services to federal and private industry clients needing assistance with problems related to radiological, mixed, or hazardous materials and environmental contaminants. This included responsibility for all aspects of performance, profitability and customer relations for the division as a profit center for the Corporation with assigned environmental programs supporting DOE, Corps of Engineers, and USEPA valued at more than $90 million.

Environmental Restoration Manager (1992-1995)

Planned and managed environmental restoration programs and related projects at sites contaminated with hazardous or radiological materials. Representative projects included program management responsibility for engineering studies and site investigation planning for NRC-regulated D&D of DOE-operated RMI titanium extrusion plant; preparation of a site characterization and field sampling requirements plan to collect contaminated soil, ground water, and buried pit waste samples for treatability studies, risk assessment and remedial design activities for the DOE Fernald waste pits area; oversight of the Fernald production facilities hazards analysis field survey conducted under provisions of DOE Order 5480.1B; and participation in development and analysis of remediation alternatives for contaminated soils at the DOE Fernald site and in the Miami-Erie Canal at the DOE Mound facility.

1987 to 1992
Westinghouse Environmental Management Company of Ohio (WEMCO), Fernald, OH

Senior Program Manager (1990-1992)

Planned, integrated and managed implementation of activities for an estimated $1.2 billion CERCLA/ RCRA regulated Environmental Restoration Program for the 25-acre DOE Fernald site waste storage area (Operable Unit 1). Duties included: technical direction of field investigations and remedial investigation/feasibility study efforts; development of work scope and oversight of architect/engineer technical activities for remedial design and remedial action planning; planning and management of waste treatment technology and process development programs; liaison, program integration, and advisory support to DOE for remediation, regulatory compliance, and corrective action planning.

Representative projects included *Waste Pit 6 Exposed Materials* Removal, which reduced estimated annual off-site radiological emissions by 90%; *Waste Pit 5 Experimental Treatment Facility Demolition*, which was also performed as a closure of a RCRA Hazardous Waste Management Unit; *Waste Pit Area Containment Improvements*, which reduced migration of contaminated soils and sediments in the waste storage area due to erosion; and *Waste Pit Area Storm Water Run-off Controls*, which reduced radiological contamination of the aquifer beneath the site due to infiltration of surface water run-off through tributaries surrounding the site. All of these projects involved collection, characterization, packaging, and disposal of investigation-derived wastes; remedial design, excavation, and disposition of contaminated soils; collection, characterization, packaging, and disposal of debris and wastes resulting from demolition of structures; and confirmation sampling and site restoration under CERCLA and RCRA.

Manager, Environmental Project Coordination (1989-1990)

Managed all phases of capital line item projects valued at approximately $190 million as part of the Fernald Environmental Health and Safety Improvements Program geared to upgrade the status of operating facilities and to protect the environmental integrity of the surrounding areas. Directed or participated in feasibility studies, environmental assessments, site surveys, conceptual and preliminary engineering and design criteria development, detailed design, regulatory permit preparation, nuclear facility and systems safety analysis, cost estimating, construction management, operational readiness review and transition to operation.

Project responsibilities also included collection, management, packaging and disposal of hazardous and low level radioactive wastes generated during project implementation at disposal sites such as NTS in accordance with CERCLA, RCRA and other applicable DOE and DOT regulations.

Project Manager (1987-1989)

Planned and implemented a $9 million upgrade of a pilot-scale biological fluidized bed process wastewater denitrification facility to full production status. Applied innovative methods to plan and sequence engineering and construction. Developed a cooperative working relationship with state regulators that resulted in negotiated agreements allowing continuous facility operation throughout the upgrade, with project completion ahead of schedule and under budget. Project

responsibilities also included collection, packaging, and disposal of construction debris and other wastes generated as a result of facility modification activities.

1985 to 1987
Goodyear Aerospace Corporation

Sr. Project Engineer

Managed all Goodyear Aerospace engineering development program activities related to the $14 million full-scale engineering test and development program for a new U.S. Navy tactical munitions air delivery system. Activities managed or performed included system design, performance test planning and implementation, safety assessment, technical document and report preparation, progress reporting, and development-to-production transition planning.

1978 to 1985
Goodyear Atomic Corporation

Production Engineering Department Supervisor (1983-1985)

Managed DOE Portsmouth Gas Centrifuge Enrichment Plant (GCEP) Production Division nuclear facilities and industrial safety and QA functions, centrifuge and plant process systems functional testing, production plant start up and operating plans and procedures development, and field engineering support of GCEP process systems.

Production Engineering Section Head (1981-1982)

Supervised review of centrifuge plant design and technical documentation for development of new plant systems test plans, start-up, and operating methodologies, and for systems optimization. Managed nuclear facility safety reviews and developed Operational Safety Requirements for centrifuge process systems in accordance with DOE O 5480.1. Developed core curriculum for all GCEP operations training programs.

Staff Physicist, Centrifuge Technology Transfer Team (1978-1981)

Coordinated technical review and agency approval of gas centrifuge technology disclosure documentation based on engineering development program activities at Oak Ridge K-25 Site and other centrifuge development facilities. Designed and implemented a program planning and control system to track and monitor centrifuge engineering development program activities at K-25.

1972 to 1978
U.S. Army

Air Defense Systems Officer

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AVESI Resumes

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DAVID L. KULIKOWSKI

CREDENTIALS/REGISTRATION

M.S. Geology, The Ohio State University, 1985
B.S. Geology, Eastern Illinois University, 1982
American Institute of Professional Geologists, CPG-9884

WORK HISTORY

AVESI	Technical Support - April 2010 to present
SAIC	Project Manager – December 1997 to April 2010
Geraghty & Miller, Inc.	Database Manager - July 1989 to December 1997
Battelle Memorial Institute	Geologic Intern - August 1984 to July 1989

EXPERIENCE SUMMARY

April 2010 to present, Technical Support, American Veteran Environmental Services, Inc. Main focus of work has included providing technical support at the Niagara Falls Storage Site and proposal development.

December 1997 to April 2010, Project Manager, SAIC. Main focus of work has included project management, database and GIS development, proposal development, budget analysis and cost-tracking.

Experience

U.S. Army Corps of Engineers - Remedial Investigation/Feasibility Study

Project manager for a large-scale remedial investigation and feasibility study at the Niagara Falls Storage Site. Project work consisted of the following:

- Lead Project Manager for past 2 years
- Served as Deputy Project Manager for prior 3 years
- Continual communication with the Corps Buffalo client
- Completion of a large scale remedial investigation - currently entering into remedial investigation "add-on" phase to resolve data gaps. Project work will entail document research, data analysis and additional field sampling efforts
- Actively participate and present in Public Workshops to inform public stakeholders of the past, current and future activities at the Niagara Falls Storage Site
- Currently entering into the feasibility portion of the project, managing all efforts for three separate phases
- Preparation of monthly accruals reports for Corps Buffalo Program Managers
- Preparation of quarterly estimate-at-completion (EAC) reports for internal reporting
- Participation in monthly technical conference calls covering aspects of both the remedial investigation and feasibility study

- Attendance at Corps Buffalo quarterly project status meetings
- Served as key presenter at NFSS public information workshops
- Currently managing waste characterization efforts to characterize and containerize legacy hazardous and radioactive wastes stored at the facility
- Maintenance and management of all cost budgets (approximately $5M)
- Maintenance and development of the project schedule for all tasks
- Development and management of an efficient data management system and GIS interface to accurately delineate surface and subsurface contamination at the facility. The system incorporates analytical and lithologic data from hundreds of soil borings and wells and currently houses over 100,000 analytical data records

U.S. Army Corps of Engineers - Radiological Investigations

Lead support during data analysis phase of radiological risk assessments
Development of sum-of-ratio (SOR) analyses to determine volume estimates for remediation
Key developer of GIS routines to graphically depict extent of radiological contamination
Developed Radiation Protection Program database for Corps projects
Database lead for various FUSRAP sites including Nigara Falls Storage Site - NY, Luckey Site - OH, Painesville Site - OH, Seaway Site - NY, Linde Site - NY

U.S. Department of Energy - Radiological Investigations

Project Management/Database Development: Database-GIS Projects

Developed a database/web-based management system for an Ohio airport which is currently used by airport personnel and has the following features:

- Allows for timely dissemination of analytical data collected on a weekly basis
- Enables users to query and report data for all site-sampling activities
- Used extensively for the delineation of analytical concentrations throughout the airport sewer system
- Used to create import files compliant with Ohio EPA software permitting programs

Instrumental in the collection of over 800,000 analytical data records for a large industrial facility in southern Ohio.

- Data was standardized into a format compatible with the Oak Ridge Environmental Information System (OREIS)
- Data was obtained from various electronic and paper copy sources and converted into an OREIS ready-to-load format
- This data has since been used extensively during the development of a sitewide GIS and for site-specific groundwater models

Helped implement the collection and data entry of over 100,000 waste management records obtained from a large industrial facility in southern Ohio.

- The legacy waste data was used to develop a comprehensive waste-analysis database to aid in the delineation of waste streams at the facility
- The database will be used extensively as the facility approaches the decontamination and decommissioning phase

Performed an integral role in the development of a GIS for the Ohio National Guard.

- The GIS provides a detailed depiction of land-use, land features, wetlands and habitat areas of a National Guard training facility in northern Ohio
- The GIS was developed according the requirements set forth by the ONG and will ultimately be used to manage training efforts conducted by the ONG

July 1989 to December 1997, Database Manager, Geraghty & Miller, Inc.

Approximately 9 years of experience in geology and hydrogeology with primary focus on the development and design of information and data management systems and their application to hydrogeologic investigations. A majority of project work was for an industrial facility in southern Ohio, the areas of primary focus were as follows:

- Developed an RFI database management system designed to track the progress of all field activities and the status of thousands of analytical samples collected during the course of a RCRA Facility Investigation. This system also allowed for real-time tracking of all quality control-related activities associated with field operations. This system was recognized by U.S. DOE as being a very organized, efficient and effective system to maintain all data aspects associated with the RFI.

- Designed and implemented a weekly and monthly cost/schedule variance reporting system for the RCRA Facility Investigation. This project had a total budget of approximately $35 million and was segregated into more than 100 separate project tasks. Budgetary data in each report was provided with only a one week lag period, providing the client current and accurate budget information. This reporting also resulted in significant savings to the client due to the highly controlled monitoring of budgetary information by project managers.

- Managed the production of four separate RFI reports. The combined reports discussed sediment, soils, surface-water and groundwater analytical results, environmental risks and hydrogeology associated with approximately 100 solid waste management units. Analytical results were derived from Phase I and II investigations which occurred over approximately four years. The report involved extensive coordination and management of approximately 50 people divided into reporting teams which included the following tasks; data interpretation and validation, graphics, risk assessment, groundwater modeling and report production. Reporting deadlines established by the U.S. EPA, Ohio EPA and U.S. DOE were aggressive, and time and budget

management systems were consulted on a daily basis. All reporting deadlines were successfully met.

August 1984 to July 1989, Geologic Intern, Battelle Memorial Institute.

Involved with feasibility studies focused on characterizing the environmental settings of proposed locations for a high-level nuclear waste repository. Duties entailed ground-water modeling of the Texas panhandle and the establishment of a representative stratigraphic column for a proposed high-level nuclear waste repository. Employed computer programming, modeling skills, statistical analyses, geophysical log interpretation and extensive literature reviews.

DAVID C. LYERLA

CREDENTIALS/REGISTRATION
B.S. Environmental Engineering, Kennedy Western University
ANSI 3.1 Senior Health Physics Technician

WORK HISTORY

AVESI	Vice-President - February 2005 to present
SAIC	Senior Health Physicist – November 1998 to November 2007

EXPERIENCE
Mr. Lyerla is the co-founder and Vice President of American Veteran Environmental Services, Inc. He is directly responsible for the overall day to day operations of American Veteran Environmental Services. Mr. Lyerla has the ability to oversee and manage operations varying from large efforts to the smallest tasks. Mr. Lyerla has the fortunate experience of working in the environmental field from field execution to project close-out.

February 2005 to Present, Vice-President, AVESI. Main focus of work is business development in government Procurement and Environmental Services. Procurement contracts have paved the way for generating revenues necessary to pursue environmental services with the government agencies and their primary contractors. Responsible for the execution of over 35 procurement contracts as well as 6 service provider contracts.

November 1998 to November 2007, Senior Health Physicist, Science Applications International Corporation (SAIC). Main focus of work was supporting all phases of radiological investigations, serving as the Radiation Protection Manager (RPM) and performing MARSSIM final status surveys at multiple sites.

U.S. Army Corps of Engineers - Radiological Investigations
Harshaw FUSRAP Site: Served as the Radiation Protection Manager and was responsible for implementation and oversight of the radiation protection program at the site.

FUSRAP St Louis: Served as the Assistant Radiation Protection Manager and was responsible for implementation of the radiation protection program in accordance with United States Army Corps of Engineers (USACE) radiation safety regulations (EM- 385-1-1 and EM-385-1-80) at three FUSRAP sites in EPA Region VII.

Niagara Falls Storage Site: Served as the Senior Health Physics Technician and conducted a MARSSIM based gamma walkover survey for the USACE covering

the entire 200 acre site. Areas were divided into Class 1, Class 2 and Class 3 areas determining coverage concentration. Managed all data collected and briefed the USACE representative on progress weekly. Also have continued providing Health Physics support throughout the Feasibility Study.

Madison Site Extrusion Building in Madison County IL: Served as the Senior Health Physics Technician responsible for the execution of the MARSSIM based final status survey plan. Surveys included all impacted structures as well as contamination extent and migration path samples. Assisted in collecting data with the ISOCS machine.

Carolinas Virginia Nuclear Power Associates

CVNPA Parr Reactor Site Decommissioning: Served as the Field Manager/Radiation Protection Manager while performing the final status survey of the 12 acre reactor site including containment building and all support buildings. Designed MARSSIM based sample plans and conducted surveying and sampling of soils, sediment, groundwater, and concrete. Provided program over-site to ensure MARSSIM compliance during final status survey and also assumed the role of the Site Safety and Health Officer.

Westinghouse Electric Company

Westinghouse Electric Company Hematite, MO site: Served as the Assistant Radiation Protection Manager at the Uranium fuel rod processing plant going through site assessment, decommissioning, demolition and eventually remediation. Was responsible for compliance with the radiation protection plan, procedural implementation and the safety during field investigation activities. Conducted daily safety briefings for all field activities and activity hazard analysis for the field tasks.

May 1996 to November 1998, Senior Health Physicist, Jacobs Engineering. Main focus of work was providing health physics support for radiological investigations.

DOE Weldon Spring Site Remedial Action Program Weldon Spring, MO: Provided health physics over site and remediation guidance for Raffinate Pit 4 and the Site Water Treatment Plant.

SPECIALIZED TRAINING

OSHA 40 hour HAZWOPER
8 hour HAZWOPER Supervisor
MARSSIM training course (ORISE)
Fall protection competent person
SAIC Quality Assurance Program Surveillance Team Leader
Hazardous Materials, Radioactive Materials, and Hazardous Waste Training (49CFR107-179)
DOT HAZMAT Safety

Advanced radioactive materials shipping trained
Arc View GIS
OSHA Competent Person Excavation Trained

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