CONTRACT DE-AC01-87EH79003

TECHNICAL PROGRESS REPORT

FOR

Technical Support Services to Assist the Office of Environmental Audit in Conducting the DOE Environmental Survey and to Provide Technical Assistance on Environmental Compliance Issues


Submitted to

U.S. Department of Energy
1000 Independence Avenue
Washington, D.C. 20585

Submitted by

NUS Corporation
910 Clopper Road
Gaithersburg, MD 20877

NUS CORPORATION

MASTER
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1.0 INTRODUCTION

NUS received authorization from DOE on August 14, 1987 to provide technical support services to assist the Office of Environmental Audit (OEV) in conducting the DOE Environmental Survey and to provide technical assistance on environmental compliance issues. NUS has completed the Preliminary Reports and continues to support DOE on the Prioritization and Tiger Team Assessment efforts.

1.1 Background

NUS is submitting this Technical Progress Report in compliance with the Reporting Requirements Checklist contained in Contract No. DE-AC01-87EH79003.

As of February 15, 1991, DOE issued 29 task assignments and amendments under the previously mentioned contract, shown as follows:

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1.2 Overview of Technical Effort

The overall contract is to accomplish a one-time, no-fault baseline Survey of all DOE operating facilities, and to provide technical assistance and support for the resolution of environmental compliance issues. The following sections will provide an overview of individual tasks assigned by DOE under this contract.

This project requires a broad range of environmental protection expertise, necessitating senior-level personnel as the primary project staff. Many of the tasks assigned by DOE require quick startup and performance, and several tasks may be active at any one time.

1.2.1 Environmental Surveys

The objective of the DOE Environmental Survey Program is to identify and prioritize areas of existing environmental risk at 36 DOE facilities. NUS' role is to technically
assist the Office of Environmental Audit in the implementation of the Surveys. Both Task Assignments 2/A-E and 5/A-E include a ten-point scope of work:

1. File Review
2. Site Information Request Letter
3. Pre-Survey Site Visit
4. Federal and State Environmental Coordination
5. Strategy Meeting/Site Plan
6. On-Site Survey
7. Sampling and Analysis Requests
8. Preliminary Report
9. Sampling and Analysis Interpretation
10. Interim Report - Identify Problems Requiring Immediate Action

Coordination of Sampling and Analysis work with the Survey reports was anticipated.

1.2.2 Prioritization

The Prioritization task was assigned to evaluate and rank problems and areas of risk found during the Environmental Surveys at DOE sites. The first phase of the effort was directed at prioritizing 16 Defense Program sites and one Non-Defense Program site. The second phase of the effort was directed at prioritizing 19 Non-Defense Program sites. The third phase of the effort is directed at refining the preliminary prioritization of all sites included in Phases I and II.

No activities were conducted during the report period for Phases I and II.

The following activities were conducted during the report period for Phase III:

- Modify ranking units based on Data Accuracy Review (DAR) meeting data.
- Extract and input appropriate DAR data into the MEPAS model.
- Attend staff meetings, as appropriate.
- Execute the MEPAS model to obtain Hazard Potential Index (HPI) rankings.
- Prepare Prioritization Draft Appendices.
- Develop additional elements of risk information systems components.

1.2.3 Environmental Compliance

DOE issued Task Assignment 6 to NUS to provide technical assistance to the Office of Environmental Guidance and Compliance. This task involves analyzing environmental compliance issues which had an effect or had the potential for affecting the Department’s operations. Task Assignment 6/A was issued on July 15, 1988 to discontinue Task 6.

1.2.4 Reactor Safety Study

NUS’ Task Assignment 7 from DOE was to provide general technical assistance and support relating to compliance requirements in the development and coordination of action plans required as a result of the study conducted by the National Academy of Science and Engineering (NAS) and which are contained in the report Safety Issues at the Defense Production Reactors.

1.2.5 Brookhaven Reactor Study

Task Assignment 4/A was issued for NUS to provide general technical support in the safety evaluation of the HFBR reactor at Brookhaven National Laboratory. The following areas were included in the scope of work:

1. Propagation of Core Meeting
2. Effect of Noncondensables on CHF
3. HFBR Leak-Before-Break-Assessment
4. Use of the Effective Break Area
1.2.6 Program Management

This task was assigned by DOE for NUS Project Management to ensure that all Environmental Survey teams operate in a consistent and uniform manner. Project Management also ensures that all reports and deliverables will be prepared under a high degree of quality assurance/quality control which is consistent with the requirements of the program.

1.2.7 Environmental Survey Manual

NUS was assigned Task 8 to provide technical support in reviewing and correcting the DOE Environmental Survey Manual, to ensure that it is up-to-date and consistent with changes made by the OEV in Survey policy.

1.2.8 General Survey Support Training

Task Assignment 9 was issued by DOE so NUS could technically assist the Office of Environmental Audit in training for: the use of MEPAS (Multimedia Environmental Pollutant Assessment System Shell); Sampling and Analysis Interpretation; and Technical Accuracy Review Comment Response.

1.2.9 Prioritization

Task Assignment 10 was issued for NUS to provide technical assistance in implementing the prioritization system for those problems and areas of risk which have been identified in the Environmental Surveys by utilizing the MEPAS program for Non-DP sites and refining the preliminary prioritization of all sites included in Phases I and II.

The following tasks have been completed prior to this reporting period for Phase II:

1. Prepared worksheets for use in the MEPAS model.
2. Extracted and input appropriate data into the MEPAS model.
3. Attended meetings and training sessions, as appropriate.

5. Executed the MEPAS model to obtain preliminary Hazard Potential Index (HPI) rankings.

The following activities were conducted during this reporting period for Phase III:

1. Prepared worksheets for use in the MEPAS model.
2. Extracted and input appropriate data into the MEPAS model.
3. Attended technical staff meetings, as appropriate.
4. Prepared Prioritization Letter Reports.
5. Executed the MEPAS model to obtain preliminary HPI rankings.

1.2.10 Tiger Team Assessments

In August 1989, DOE requested support from NUS for the Environmental portion of multiple Tiger Team assessments. Activities included:

- Compile and maintain a repository and assist in reviewing environmental reports, data bases and other pertinent information to develop an understanding of the conditions and operations of DOE facilities to be assessed and prepare a list of records and files that the assessment team should review while on-site.

- Prepare a detailed site-specific assessment plan and agenda.

- Provide technical assistance in conducting the on-site assessment.

- Provide technical assistance in the development of Sampling and Analysis plans.

- Provide written reports as required for use in developing the predecisional draft and final assessment reports.
1.2.11 Environmental Audits

In August 1990, DOE requested support from NUS to perform Environmental Audits at DOE facilities.

Activities included in the Audits are:

- Compile and maintain a repository, and assist in reviewing environmental reports, data bases, and other information to develop an understanding of the conditions and operations of the particular DOE facility.

- Provide written, detailed, site-specific Audit Plans which will include but are not limited to the following:
  - identification and summaries of key site issues;
  - agenda for on-site activities (including interviews, record reviews, observation visits, document reviews and operations); and
  - list of records, files and other documents reviewed by the Audit team while on-site.
2.0 TECHNICAL SUMMARY

This section of the report describes the technical progress of each of the task assignments, with particular focus on the specific sites visited on the Environmental Surveys.

2.1 Environmental Surveys

NUS assisted the Office of Environmental Audit by sharing their Survey/audit experiences with other contractors as directed by DOE, and reviewing Survey/audit protocols.

2.1.1 Feed Materials Production Center (FMPC) Survey

In August and September, minor production activities occurred on the Draft Appendix. Some file close-out activities were also performed in September. No work was performed on the FMPC Survey during October. The Team Coordinator review of the Draft Appendix was conducted during November. Minor modifications were made to the Draft Appendix during December. No work was performed on the FMPC Survey during January and February.

2.1.2 Mound Plant Survey

No technical activities were performed during the reporting period.

2.1.3 Rocky Flats Plant (RFP) Survey

Technical work on this site has consisted of revisions to the Prioritization Draft Appendix.

2.1.4 Portsmouth Gaseous Diffusion Plant Survey

During this period, formatting and other Draft Appendix style changes were incorporated in preparation for inclusion in the Summary Report. The Prioritization Liaison also reviewed the Draft Appendix for technical consistency as part of the
Summary Report preparation process. Other activities included file review and close-out.

2.1.5 Hanford Survey

In August and September, minor production activities occurred on the Draft Appendix. Some file close-out activities were also performed in September. No work was performed on the Hanford Survey during October and November. The Team Coordinator review of the Draft Appendix was conducted during December. The use of Survey sampling and analysis data was incorporated into the Draft Appendix during January and February.

2.1.6 Pantex Plant Survey

No technical activities were performed during the reporting period.

2.1.7 Oak Ridge Y-12 Plant Survey

Technical work on this site has consisted of revisions to the Prioritization Draft Appendix.

2.1.8 Sandia National Laboratories (SNL), Livermore Survey

During this period, formatting and other Draft Appendix style changes were incorporated in preparation for inclusion in the Summary Report. The Prioritization Liaison also reviewed the Draft Appendix for technical consistency as part of the Summary Report preparation process. Other activities included file review and close-out.

2.1.9 Lawrence Livermore National Laboratory (LLNL) Survey

During this period, formatting and other Draft Appendix style changes were incorporated in preparation for inclusion in the Summary Report. The Prioritization Liaison also reviewed the Draft Appendix for technical consistency as part of the Summary Report preparation process. Other activities included file review and close-out.
2.1.10 Savannah River Site (SRS) Survey

In August and September, minor production activities occurred on the Draft Appendix. Some file close-out activities were also performed in September. Modifications were made to the Draft Appendix during October and November pursuant to the modeling revisions resulting from the second Data Accuracy Review meeting. Minor modifications were made to the Draft Appendix during December and January. No work was performed on the SRS Survey during February.

2.1.11 Kansas City Plant (KCP) Survey

Technical work on this site has consisted of revisions to the Prioritization Draft Appendix.

2.1.12 Los Alamos National Laboratory (LANL) Survey

No technical activities were performed during the reporting period.

2.1.13 Pinellas Plant Survey

In August and September, minor production activities occurred on the Draft Appendix. Some file close-out activities were also performed in September. No work was performed on the Pinellas Survey during October. The Team Coordinator review of the Draft Appendix was conducted during November. Minor modifications were made to the Draft Appendix during December and January. No work was performed on the Pinellas Survey during the February.

2.1.14 Brookhaven National Laboratory (BNL) Survey

During this period, formatting and other Draft Appendix style changes were incorporated in preparation for inclusion in the Summary Report. The Prioritization Liaison also reviewed the Draft Appendix for technical consistency as part of the Summary Report preparation process. Other activities included file review and close-out.
2.1.15 Nevada Test Site (NTS) Survey

Technical work on this site has consisted of revisions to the Prioritization Draft Appendix.

2.1.16 Fermilab Survey

During this period, formatting and other Draft Appendix style changes were incorporated in preparation for inclusion in the Summary Report. The Prioritization Liaison also reviewed the Draft Appendix for technical consistency as part of the Summary Report preparation process. Other activities included file review and close-out.

2.1.17 Argonne National Laboratory (ANL) Survey

Activities consisted of Draft Appendix production and final technical review.

2.1.18 Sandia National Laboratories - Albuquerque (SNLA) Survey

In August and September, minor production activities occurred on the Draft Appendix. Some file close-out activities were also performed in September. Minor modifications were made to the Record of Assumptions memoranda during October. The Team Coordinator review of the Draft Appendix was conducted during November. Minor modifications were made to the Draft Appendix and Record of Assumptions memoranda during December. Minor modifications were made to the Draft Appendix during January. Some file close-out activities were performed in February.

2.1.19 Oak Ridge National Laboratory (X-10) Survey

No technical activities were performed during the reporting period.

2.1.20 Paducah Gaseous Diffusion Plant Survey

During this period, formatting and other Draft Appendix style changes were incorporated in preparation for inclusion in the Summary Report. The Prioritization
Liaison also reviewed the Draft Appendix for technical consistency as part of the Summary Report preparation process. Other activities included file review and close-out.

2.1.21 Morgantown Energy Technology Center (METC) Survey

No technical activities were performed during the reporting period.

2.1.22 Pittsburgh Energy Technology Center (PETC) Survey

No technical activities were performed during the reporting period.

2.1.23 Idaho National Engineering Laboratory/Component Development and Integration Facility (INEL/CDIF) Survey

Activities consisted of Draft Appendix production and final technical review.

2.1.24 Lawrence Berkeley Laboratory (LBL) Survey

In August and September, minor production activities occurred on the Draft Appendix. Some file close-out activities were also performed in September. No work was performed on the LBL Survey during October. The Team Coordinator review of the Draft Appendix was conducted during November. No work was performed on the LBL Survey during December. Minor modifications were made to the Draft Appendix during January. No work was performed on the LBL Survey during February.

2.1.25 Stanford Linear Accelerator Center (SLAC) Survey

In August and September, minor production activities occurred on the Draft Appendix. Some file close-out activities were also performed in September. No work was performed on the SLAC Survey during October. The Team Coordinator review of the Draft Appendix was conducted during November. Minor modifications were made to the Draft Appendix during December and January. No work was performed on the SLAC Survey during February.
2.1.26 Solar Energy Research Institute (SERI) Survey

Activities consisted of Draft Appendix final technical review.

2.1.27 Strategic Petroleum Reserves (SPR) Survey

Technical work on this site has consisted of revisions to the Prioritization Draft Appendix.

2.1.28 Oak Ridge Gaseous Diffusion Plant (ORGDP) Survey

During this period, formatting and other Draft Appendix style changes were incorporated in preparation for inclusion in the Summary Report. The Prioritization Liaison also reviewed the Draft Appendix for technical consistency as part of the Summary Report preparation process. Other activities included file review and close-out.

2.1.29 Laboratory for Energy-Related Health Research (LEHR) Survey

Minor production activities occurred on the Draft Appendix in August, September, and October. Some file close-out activities were also performed in September. The Team Coordinator review of the Draft Appendix was conducted during November. Minor modifications were made to the Record of Assumptions memoranda during December. Minor modifications were made to the Draft Appendix during December and January. No work was performed on the LEHR Survey during February.

2.1.30 Bonneville Power Administration/Western Area Power Administration (BPA/WAPA) Survey

DOE decided to delete these sites from the Environmental Survey after reviewing further information.

2.1.31 National Institute for Petroleum and Energy Research (NIPER) Survey

Activities consisted of Draft Appendix production and final technical review.
2.1.32 Santa Susana Field Laboratories (SSFL) Survey

During this period, formatting and other Draft Appendix style changes were incorporated in preparation for inclusion in the Summary Report. The Prioritization Liaison also reviewed the Draft Appendix for technical consistency as part of the Summary Report preparation process. Other activities included file review and close-out.

2.1.33 Waste Isolation Pilot Plant (WIPP) Survey

DOE decided to delete this site from the Environmental Survey after reviewing further information.

2.1.34 Ames Laboratory Survey

Activities consisted of Draft Appendix production and final technical review.

2.1.35 Naval Petroleum and Oil Shale Reserves (NPOS R) Survey

Technical work on this site has consisted of revisions to the Prioritization Draft Appendix.

2.1.36 Princeton Plasma Physics Laboratory (PPPL) Survey

Activities consisted of Draft Appendix production and final technical review.

2.1.37 Naval Petroleum Reserves - California (NPRC) Survey

No technical activities were performed during the reporting period.

2.2 Prioritization

Under Phases I and II, no activities were conducted during this reporting period.

Production of the 36 Draft Appendices, including preparation of RIS tables, occurred throughout the period. In addition, several ranking units for Savannah River Site,
Rocky Flats Plant, Pantex Plant, and Oak Ridge National Laboratory were redeveloped and rerun based on new information provided by those sites. The results were used in generating new RIS values and in revising the Draft Appendices. Findings from the DOE audit of the prioritization effort were addressed. NUS also assisted the DOE Prioritization Program Manager in conducting the Integration Panel Meetings and providing input to and authoring sections of the Summary Report. A working copy of the Summary Report was provided to DOE. Because of an inconsistency between MEPAS and RIS, certain ranking units were re-evaluated using those two systems.

2.3 **Environmental Compliance**

This task was closed on July 15, 1989.

2.4 **Reactor Safety Study**

There was no technical activity for this task during this reporting period.

2.5 **Brookhaven Reactor Study**

There was no technical activity for this task during this reporting period.

2.6 **Sampling and Analysis**

There was no technical activity for this task during this reporting period.

2.7 **Survey Follow-Up**

NUS personnel reviewed and evaluated functional responsibilities designated under DOE Environmental Orders and developed corresponding matrices. These matrices were delivered to DOE on September 8, 1989.

2.8 **Trend Analysis**

During this period, the third trend analysis report was assigned on September 28, 1990. The draft report was submitted to DOE on November 26, 1990 and the final
report with appendices was submitted to DOE on December 10, 1990. This trend analysis incorporated Management, Safety and Health, and Environment findings information from the initial 16 Tiger Teams Assessments (i.e. Rocky Flats through PGDP). DOE review comments resulted in minor modifications to the Environment and Safety and Health sections of the report. DOE requested assistance in assembling information for an expanded OSHA section for the Tiger Team Trend Analysis Report. During the period from December 18, 1990 to February 7, 1991, the OSHA B-1 summaries for Pantex, Mound, Y-12, BNL, LLNL, SRS, PGDP, and Hanford were categorized, summarized, and submitted to DOE. There has been no additional activity during this reporting period.

2.9 Protocols for Preparation and Production of Tiger Team Assessment Reports

There has been no activity on this task during this reporting period.

2.10 Tiger Team Assessments

2.10.1 Y-12 Plant Tiger Team Assessment

No technical activities were performed during the reporting period.

2.10.2 Pinellas Plant Tiger Team Assessment

No technical activities were performed during the reporting period.

2.10.3 Mound Plant Tiger Team Assessment

No work was performed on the Mound Tiger Team Assessment during this period.

2.10.4 Pantex Plant Tiger Team Assessment

Team members reviewed and commented on Pantex Tiger Team-related documents.
2.10.5 Nevada Test Site Tiger Team Assessment

No technical work related to this site was conducted during this reporting period.

2.10.6 Kansas City Plant Tiger Team Assessment

There was no activity during this reporting period.

2.10.7 Portsmouth Tiger Team Assessment

No significance technical work was performed during this reporting period.

2.10.8 Lawrence Livermore National Laboratory (LLNL) Tiger Team Assessment

No technical work related to this site was conducted during this reporting period.

2.10.9 Brookhaven National Laboratory Tiger Team Assessment

Activities include file close-out and review of Tiger Team-related documents.

2.10.10 Sandia National Laboratories (SNL), Livermore Tiger Team Assessment

On August 21, 1990, the camera-ready version of the Tiger Team Assessment Report was delivered to DOE for publication. In addition, team members reviewed and prepared comments on SNL, Livermore Tiger Team-related documentation. Comments were sent to DOE on September 14, 1990. File close-out activities were performed in October and November. No work was performed on the SNL, Livermore Tiger Team Assessment during December. File close-out activities were performed in January and February.

2.10.11 Paducah Gaseous Diffusion Plant Tiger Team Assessment

Team members reviewed and commented on Tiger Team-related documents. Comments were submitted to the Environment Subteam Leader in September and November.
2.10.12 Hanford Tiger Team Assessment

Activities included preparation and incorporation of horizontal and vertical review, site, and operations office comments into the draft report and review of Tiger Team-related documents from the Hanford Site.

2.10.13 Argonne National Laboratory Tiger Team Assessment

The pre-assessment site visit was conducted August 16-17, 1990, and team members initiated document reviews on August 23, 1990. The on-site portion of the assessment was initiated on September 17, 1990 and the close-out was held on October 19, 1990. Tiger team-related documents were reviewed during December. DOE submitted comments to ANL on January 7, 1991.

2.10.14 Oak Ridge National Laboratory Tiger Team Assessment

Initial organizational activities for the ORNL Tiger Team was conducted under Task Assignment 22. Most of the Tiger Team was conducted under Task Assignment 25 during this period. Activities consisted of pre-assessment tasks including the pre-assessment site visit, team meetings, document review, and schedule development; on-site evaluation and draft report production; and post-assessment tasks including internal peer review, incorporation of peer review, and other comments. Team members also reviewed and commented on Tiger Team-related documentation.

2.10.15 Lawrence Berkeley Laboratory Tiger Team Assessment

Activities for the LBL Tiger Team included attendance of the pre-assessment visit to LBL by the DOE Team Leaders and NUS Coordinator on December 4-6, 1990, performance of the on-site portion of the assessment from January 14 through February 15, 1991, and the preparation of horizontal and vertical review comments.

2.10.16 Princeton Plasma Physics Laboratory Tiger Team Assessment

An organizational meeting for Team Management was held at OSP on January 9, 1991. The Pre-Assessment visit to PPPL was conducted January 15 and 16, 1991. Tiger Team logistics, activities, workspace, etc. were discussed with the site.
Documents listed in the information request were reviewed for completeness. The Pre-Assessment Environment Subteam meeting was held in Gaithersburg on January 29, 1991. Logistics, activities, workspace, discipline daily agendas and other organizational issues were covered. On-site activities began on February 11, 1991.

2.11 Environmental Audits

2.11.1 Bonneville Power Administration Environmental Audit

Most of the Bonneville Power Administration Audit effort took place during this reporting period. Pre-Assessment preparation took place from August 22 to September 10, 1990. On-site activities, including interviews, document review, and report preparation occurred from September 11 to October 5, 1990. NUS technical and site reviews of the draft Audit report were conducted and the resulting comments were incorporated into the final report. Audit-related documentation was reviewed by team members and comments were provided to DOE.

2.11.2 Maywood Interim Storage Site Environmental Audit

Activities included performance of the pre-Audit site visit on October 16 at Maywood, New Jersey and October 18-19 at Oak Ridge, Tennessee; performance of the on-site portion of the Audit at Maywood and Oak Ridge from November 7 through November 16, completion of the horizontal and vertical reviews by December 7; and incorporation of site, operations office, and DOE-HQ comments.

2.11.3 Western Area Power Administration Environmental Audit

During this reporting period, an Environmental Audit was planned and conducted at representative facilities of the Western Area Power Administration’s (Western’s) Phoenix Area Office. As part of the planning phase, an information request was submitted to Western and a pre-Audit site visit was conducted on November 6 and 7, 1990. On-site activities for the Environmental Audit took place November 29 to December 14, 1990. A draft report was provided to Western personnel during a close-out meeting on December 14, 1990. Comments by Western personnel and other reviewers on the draft report were addressed and sent to DOE on January 24, 1991.
2.11.4 North Las Vegas Facility Environmental Audit

The pre-Audit team meeting was conducted on January 15, 1991. The Audit was initiated January 28, 1991 at the Santa Barbara Operations. The Audit close-out was held February 15, 1991 at the Nevada Operations Office in Las Vegas, Nevada.

2.12 Program Management

- NUS Project Management continued to monitor and review on-going Survey, Prioritization, Audit and Tiger Team activities.
- NUS continued to prepare and review overall budgets and expenditures for the entire contract to ensure project completion within budget.
- On several occasions, NUS met with DOE to discuss the budget and anticipated expenditures to complete tasks for this contract.
- NUS Project Management prepared and submitted Task Plans for each of the Task Assignments issued by DOE during this reporting period. Project Work Plans were prepared or revised when necessary and distributed internally to all Survey, Prioritization, Tiger Team and Audit participants.
- Monthly progress reports have been submitted to DOE to track technical accomplishments and budget expenditures, in accordance with the contract requirements.