DOE DMSA Map #1

DOE DMSA Map #2

DOE DMSA Map #3

DOE DMSA Map #4

DOE DMSA Map #5

DOE DMSA Map #6

DOE DMSA Map #7

DOE DMSA Map #8

DOE DMSA Map #9

DOE DMSA Map #10

DOE DMSA Map #11

IV. METHOD OF ACCOMPLISHMENT

A. GENERAL

The general method of accomplishment will be the use of the BJC management and integration approach. BJC will use, to the extent possible, existing subcontracts to obtain resources and perform the work. BJC will provide the appropriate management and oversight resources to ensure smooth integration of subcontractors in performing the work as a team project.

Characterization of the material in DMSAs includes evaluation of the material for NCS, RCRA hazardous, PCB, asbestos, and radioactive contaminants. The characterization of the DMSAs will begin with those areas that are deemed to be of higher priority based on the potential for release of contaminants to the environment and the potential to contain RCRA hazardous or PCB wastes.

It is the goal of this project to maintain an effective program to control personnel exposure to chemical, radiological, and physical stress consistent with established standards of the DOE and the Occupational Safety and Health Administration.

B. PROJECT TEAM

The Project Team will include BJC for project management and integration (M&I), subcontract technical oversight, environmental, safety and health safety advocate oversight, and procurement. Subcontracted resources may be obtained from Weskem LLC for waste operations, Westinghouse Safety Management Solutions LLC (WSMS) for NCS and radiation protection engineering, and Safety and Ecology Corporation (SEC) for field operations radiation protection support, USEC for non-destructive analysis support, Nuclear Filter Technology Corporation (NFT), Incorporated for data management support, and USEC for analytical support. Additional support will be obtained from other subcontractors as needed. See Figures 15 and 16 for Project and Field Execution Team Organization Charts.

Field Team Execution

A team concept will be utilized to accomplish the scope of the DMSA work activities. Four work teams will be placed into the field. Each team will consist of a Front Line Supervisor and nine team members. The team members will include Environmental, Safety and Health (ES&H) technicians, Radiological Control Technicians (RCT), DMSA Inspectors, samplers, decontamination operators, waste operators, and maintenance mechanics.

All field personnel will be required to wear protective clothing and equipment specified in the project-specific health and safety plan. Contamination controls will be maintained at each work site. RCTs will be assigned to provide contamination control support for each field team. An ES&H technician will be assigned to each field team to provide industrial hygiene and safety support.

Field personnel will be knowledgeable of all project-specific documents relevant to the work being performed which may include a health and safety plan, Activity Hazard Analysis (AHA), quality assurance project plan, site-specific sampling and analysis plan (SAP), and waste management plan. A copy of each plan will be available for review by field personnel before the onset and through the duration of any field activities. Field personnel will use these documents as necessary to obtain specific information regarding decontamination, equipment/supplies, health and safety, sample collection/identification, sample packaging, etc.

Work Control

Work will be planned incorporating the following core functions of the Integrated Safety Management System (ISMS):

- Define the scope of work.
- Identify, categorize, and analyze hazards.
- Develop and implement hazard controls.
- Verify readiness and perform the work safely.
- Collect feedback and implement actions for continuous improvement.

Key personnel will plan tasks to ensure that the work will be executed in a manner that addresses safety, health, the environment, and complies with all applicable rules, regulations, and procedures. All needed work permits (e.g., health & safety, radiological) will be addressed and issued. All project task documentation will be complete prior to initiating specific DMSA field activities. Readiness will be verified during a pre-task meeting with personnel performing the work. This ensures personnel understand the requirements and hazards of the task. Work will be performed safely and, if necessary, work will be stopped to address any problems.

Field oversight will be provided to ensure that the work is being performed safely and in accordance with applicable requirements. Post-job briefings will be conducted to review how work was performed and any suggestions for improvements.

C. TECHNICAL APPROACH

Uranium enrichment materials stored in DMSAs are commingled with other materials and present a complex work environment. These materials must be moved and sorted in order to find and characterize all potential RCRA hazardous /TSCA wastes. DMSAs must receive a nuclear criticality safety (NCS) characterization prior to the disturbance of any materials.

Activities Preliminary to DMSA Sorting (NCS Characterization)

NCS characterization provides the information necessary to safely move or manage materials without the threat of an uncontrolled nuclear criticality. This characterization can be very slow in a complicated environment of uranium enrichment process materials. The consequences of an uncontrolled nuclear criticality mandate the characterization. An uncontrolled nuclear criticality will release potentially lethal levels of radiation for personnel that are near the event. This scenario must be prevented.

During the initial NCS characterization, the DMSA Inspector's determination of the proper NCS status for items will be based upon a review of documentation, process knowledge, and/or visual inspection. The DMSA inspector coordinates these activities with the NCS engineer. Only those items that will be moved or disturbed must be characterized using the initial NCS characterization steps.

NCS Documentation Review

As a first step in the NCS characterization process, existing documentation is reviewed by the DMSA Inspector for information on the uranium content of DMSA items. The extent of the documentation review is documented. Such documentation may exist, for example, as Requests for Disposal for waste items or as records of process equipment history/status.

The documentation review is used to categorize items according to these requirements:

- If historical documentation clearly shows an item has no significant uranium accumulation, the DMSA Inspector declares it NCS Exempt.

- If the documentation clearly shows an item does not contain fissionable-assay material, the DMSA Inspector declares it NCS exempt.

- If historical documentation shows an item has a ^{235}U mass and enrichment within the limits for a Spacing-Controlled Item, then the item is controlled as such.

- If historical documentation shows an item has a ^{235}U mass and enrichment exceeding the limits for a Spacing-Controlled Item, then the item is declared a Singularly-Contingent Item and promptly handled per the NCS requirements.

- 5, 30, and 55-gallon drums that meet the criteria for Spacing Exempt Items in Nuclear Criticality Safety Approval (NCSA) 97-001 will be governed by NCSA 97-001.

When documented mass and enrichment data is used to establish the NCS status of an item, there will be:

- clear traceability between the item and the documentation.
- appropriate accounting for uncertainty in mass and enrichment measurements.

NCS Survey Activities

Preliminary NCS characterization has segregated the 160 DMSAs into Phase 1 DMSAs (expected to have no significant uranium-235 isotope (^{235}U) accumulations) and Phase 2 DMSAs (where significant ^{235}U accumulations may exist). Table 1 provides a full listing of DMSAs by priority assignment.

Phase 2 DMSAs contain some equipment, materials, and waste that may contain fissionable-assay material (>1 wt% ^{235}U). Since some of the DMSA materials are uncharacterized and they may contain unquantified amounts of contamination, a single parameter may be protecting against a contingency that could result in an accidental nuclear criticality. Thus, precautions are taken during the planned characterization operations to ensure that any undocumented control is not compromised. Some of these undocumented controls may include mass, absorption, geometry, interaction, concentration, moderation, enrichment, reflection, and volume.

Nuclear Criticality Safety Evaluation (NCSE) 98-001 was developed and approved to cover the NCS characterization of the DMSAs. NCSE 98-001 was prepared in accordance with DOE Order 420.1 as implemented in Bechtel-Jacobs procedures for an NCS program and NCSAs.

Many of the Phase 2 DMSA items have not been exposed to the process gas streams, so there is negligible potential that they contain significant uranium accumulations. The intent in planning the DMSA NCS characterization is to allow those items that are exempt from NCS controls to be readily relocated. At the same time, NCS controls must be maintained for those remaining items that may contain significant uranium accumulations.

For items that have been exposed to process gas streams, the DMSA Inspector may declare any such item to be NCS Exempt, if the visual inspection shows all internal and external surfaces are virtually free of uranium accumulation and liquids. Thus, a piece of process equipment may be declared NCS Exempt based upon visual inspection alone if all surfaces can be inspected. Otherwise, if all surfaces are not visible for visual inspection, the analytical characterization (swipes or Non Destructive Analysis [NDA]) will be used to show that an item has minimal uranium accumulation.

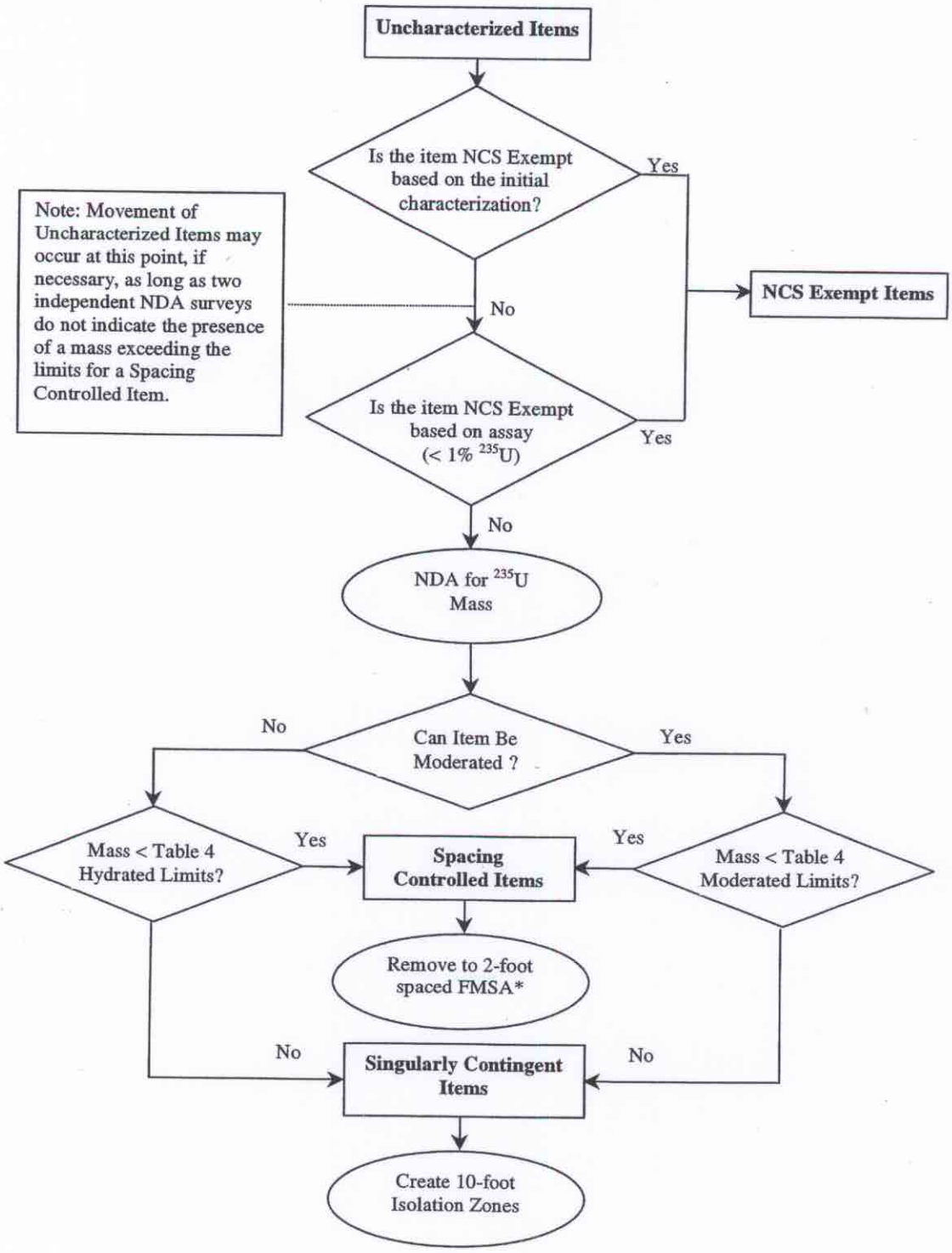

Figure 14: Overview of DMSA NCS Characterization

*Note: FMSA (Fissionable Material Storage Area) – An area where items are stored under NCS controls to comply with the double contingency principle. In addition to FCA signs, FMSAs are posted with "Fissile Storage Array" signs stipulating the appropriate limits, controls, and instructions. FMSAs are posted in accordance with BJC procedure BJC-NS-1005, "Nuclear Criticality Safety Program Elements."

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Assay Swipes for ^{235}U Enrichment

Two independent analyses are used to determine the ^{235}U enrichment and/or the NCS status of an accumulation. Documentation from a previous enrichment analysis may serve as one of the two analyses, so that only one swipe is needed. If such documentation is used, there must be traceability between the document and the item. If documentation is not available, two independent swipes are required. The laboratory analysis of these swipes appropriately account for measurement uncertainty by including a factor of two positive standard deviations.

If two independent analyses of an accumulation show an ^{235}U enrichment less than or equal to 1 wt%, then the item may be declared NCS Exempt.

NDA Mass Survey

NDA mass surveys may be used to scan for uranium accumulations within the DMSAs using NDA techniques similar to those commonly used to locate uranium accumulations in the process areas of PGDP. The NDA is performed by an individual who has approved, documented experience and training. NDA surveys are performed prior to moving or disturbing Uncharacterized or Spacing-Controlled Items. NDA surveys are not required before moving NCS-Exempt Items as long as they can be moved without moving or disturbing other materials.

Waste Characterization and Sorting Activities

The materials in each DMSA will be inspected and inventoried. This activity will require that the material within most DMSAs be sorted. Sorting of DMSAs will only occur after NCS characterization. During the inspections, DMSA materials that are determined to be waste may be classified as RCRA hazardous, TSCA, Low-level radioactive, mixed, or solid waste if enough process knowledge is available. Radiation surveys or analyses may be required to complete waste classifications. Sampling and analyses will be performed in accordance with SW-846.

Waste Classification

The definitions of the waste classifications are provided below:

RCRA Hazardous Waste — Any solid, liquid, or contained gaseous material (compressed gas cylinder) which is characteristically hazardous or is a listed hazardous waste as defined by KRS 224.01-010 and 401 KAR 31:030, and/or any material which has come in contact with a listed hazardous waste, including spill cleanup residue. For purposes of this document, RCRA hazardous wastes are wastes regulated as hazardous under Kentucky Hazardous Waste Regulations.

TSCA Waste — Wastes regulated under the Toxic Substances Control Act as defined in 40 CFR 761 and as regulated under the Uranium Enrichment TSCA Federal Facilities Compliance Agreement.

Low-Level Radioactive Waste — Waste that contains radioactivity but is not, by definition, high-level waste, transuranic waste, spent nuclear fuel, or byproduct material as defined by DOE Order 435.1. Low-level waste does not contain hazardous waste as defined in 401 KAR 31 or materials regulated under the Toxic Substances Control Act as defined in 40 CFR 761.

Mixed Waste — Waste containing both radioactive and RCRA hazardous components as defined by the Atomic Energy Act and the Kentucky Hazardous Waste Regulations. Mixed waste identified by this

project will be managed in accordance with the September 1997, Agreed Order (DWM-30039-042) and approved Mixed Waste Site Treatment Plan.

Solid Waste — Any solid, liquid, or contained gaseous material (compressed gas cylinder) which is not radioactive and is not RCRA hazardous waste or TSCA waste as defined in KRS 224.01-010(31).

RCRA Hazardous Waste Characterization and Management

RCRA hazardous waste will be classified using process knowledge or chemical analysis. RCRA hazardous wastes includes both listed and characteristic wastes as defined by applicable regulations. Inspections will use process knowledge to quickly isolate those wastes readily identified as RCRA hazardous regulated. Disassembly of abandoned equipment within in the DMSA may be necessary to isolate RCRA hazardous wastes.

Other wastes not readily identified may require sampling in order to characterize the waste as RCRA hazardous. Personnel that collect samples will be limited to those individuals who are trained and knowledgeable of field procedures. Field surveillances will be conducted to ensure that the requirements of sampling technique are met.

Specific DMSA material will be sampled and appropriate labels placed on sample containers as directed in the project specific SAP. Quality control samples will be collected as directed by the SAP. Complete chain of custody forms will be initiated for each sample. Chain-of-custody is required for analytical samples to provide traceability of possession from initial sample collection through sample transfer and/or final disposition. The field sampler is responsible for the proper handling and custody of the samples collected until they are properly and formally transferred to another person or the laboratory.

Data tracking procedures will be utilized to maintain sample data integrity, to facilitate the management of analytical laboratory services, to enable project personnel to determine the status of the analytical data at any time, and to ensure that data is reviewed in accordance with project data quality objectives (DQOs). Samples collected for laboratory analysis will be tracked from collection through disposal using various types of sample related documentation, including chain-of-custody forms and sample disposal records.

Only Sample Management Office (SMO) approved laboratories will be utilized for waste analysis. This approval process includes on site audits of the laboratories. Statements of work will be provided to the laboratories to initiate the analysis required.

Analytical data will be reviewed to determine whether the data quality meets the requirements of the project. The level of review is determined by the DQOs established for each sample. A review of the data will be conducted to verify that the analytical subcontractor has met the technical requirements of the analytical subcontract in terms of completeness and compliance with specified analytical and Quality Assurance and Quality Control (QA/QC) protocols. Data Verification will be accomplished by a technical review of data quality and useability against the DQOs. Data Validation will be a formal review process performed by an independent validator if required by the project SAP. Data review is performed by qualified and trained personnel. As a result of the technical review of data quality, data may be flagged, or qualified, to alert the end user to any limitations of the data. Any qualifiers assigned to the data are maintained in the database with the data.

RCRA hazardous wastes will be containerized in appropriate packaging that meets the waste acceptance criteria for Part B permitted storage. The container will be labeled in accordance with procedure and moved into appropriate storage.

A Request for Disposal (RFD) form will be completed for all material in each DMSA. The RFD will provide the description, estimated volume, and preliminary characterization of the material. Process knowledge will be documented using the form and attachments to the form.

RCRA hazardous waste will be shipped to an approved off-site treatment/disposal facility within one year of the waste's accumulation start date.

TSCA (PCB) Waste Characterization and Management

TSCA (PCB) waste will be classified using process knowledge or chemical analysis. Inspections will use process knowledge to quickly isolate those wastes readily identified as TSCA regulated. Disassembly of abandoned equipment within in the DMSA may be necessary to isolate TSCA wastes. Each work crew will segregate DMSA metal from nonmetal materials. Oily material, equipment containing oil, materials that are known to contain or may possibly contain PCB oils, and material contaminated with or potentially contaminated with PCBs will be segregated. Items that have come into contact with PCBs will be managed separately unless decontaminated to less than 10 micrograms PCBs /100 cm2. Capacitors will be removed from equipment managed as PCB waste unless clearly marked as "No PCBs." Equipment reservoirs containing oil will be drained and absorbent material will be added to the reservoir.

Wastes requiring chemical analysis will be sampled and analyzed in the same manner as the RCRA hazardous waste that was previously described.

TSCA (PCB) wastes will be containerized in appropriate packaging that meets the waste acceptance criteria for TSCA (PCB) storage. The container will be labeled in accordance with procedure and moved into appropriate storage.

A Request for Disposal (RFD) form will be completed for all TSCA (PCB) material. The RFD will provide the description, estimated volume, and preliminary characterization of the material. Process knowledge will be documented using the form and attachments to the form.

TSCA (PCB) liquid and soft solid waste will be shipped for disposal to the TSCA (PCB) Incinerator at Oak Ridge, Tennessee as the incinerator is made available. Other TSCA (PCB) solid wastes will be stored in adequate storage until such time as disposal capacity is available.

Low-Level Radioactive Waste (LLW) Characterization and Management

LLW waste will be classified using process knowledge, radiation surveys or radiochemical analysis. Wastes requiring radiochemical analysis will be sampled and analyzed in the same manner as the RCRA hazardous waste that was previously described. A Request for Disposal (RFD) form will be completed for all LLW material. The RFD will provide the description, estimated volume, and preliminary characterization of the material. Process knowledge and any radiation surveys will be documented using the form and attachments to the form.

LLW will be sorted, managed, and stored within the DMSA. Those wastes requiring contamination control will be wrapped in clear plastic.

Mixed Waste Characterization and Management

Mixed waste will be classified using process knowledge, radiation surveys, radiochemical analysis or chemical analysis. Mixed wastes include both listed and characteristic wastes as defined by state regulations. Inspections will use process knowledge to quickly isolate those wastes readily identified as Mixed regulated. Disassembly of abandoned equipment within in the DMSA may be necessary to isolate Mixed wastes. Wastes requiring radiochemical or chemical analysis will be sampled and analyzed in the same manner as the RCRA hazardous waste that was previously described

Mixed wastes will be containerized in appropriate packaging that meets the waste acceptance criteria for Part B permitted storage. The container will be labeled in accordance with procedure and moved into appropriate storage.

A RFD form will be completed for all Mixed waste material in each DMSA. The RFD will provide the description, estimated volume, and preliminary characterization of the material. Process knowledge will be documented using the form and attachments to the form.

Mixed waste will be added to the Site Treatment Plan for the Paducah site and will be treated or disposed as treatment/disposal technology is made available.

Solid Waste Characterization and Management

Solid waste will be characterized using two approaches. Radiation surveys will be performed for potentially surface contaminated material. Radiochemical analysis will be performed for potentially volumetrically contaminated material. Wastes requiring radiochemical analysis will be sampled and analyzed in the same manner as the RCRA hazardous waste that was previously described. A RFD form will be completed for all solid waste material. The RFD will provide the description, estimated volume, and preliminary characterization of the material. Process knowledge and any radiation surveys will be documented using the form and attachments to the form.

Solid waste will be disposed at the PGDP C-746-U Landfill. If DMSA material is known to contain or possibly contain asbestos fibers, an asbestos evaluation and/or sampling will be performed. Asbestos will be removed and the material will be packaged as asbestos containing materials. Solid waste with contaminated asbestos containing material will be disposed at the PGDP C-746-U Landfill according to solid waste regulations.

Permitting/Closure

A Part A RCRA hazardous permit application will be submitted for those areas where RCRA hazardous /Mixed wastes are discovered. Closure of the areas identified in the RCRA hazardous /Mixed permit will be accomplished in accordance with RCRA hazardous /Mixed requirements. Although not included in this scope for planning purposes, it is recommended that negotiation of an agreed order be pursued as an alternative to the permitting/closure of DMSAs found to contain hazardous wastes.

Abandoned fixed equipment within DMSAs will be sampled for characterization. Fixed equipment and systems would be drained and left in place for future D&D for the building containing the equipment. Additional RCRA closure activities for the equipment would be conducted as agreed between DOE and the Kentucky Department for Environmental Protection (KDEP).

Individual items will be sampled as necessary to delineate the extent, if any, of contamination from hazardous, PCBs, or radioactive wastes. Cleanup of releases which may be identified during the execution of this project will be managed according to DOE and the contractors plans and procedures.

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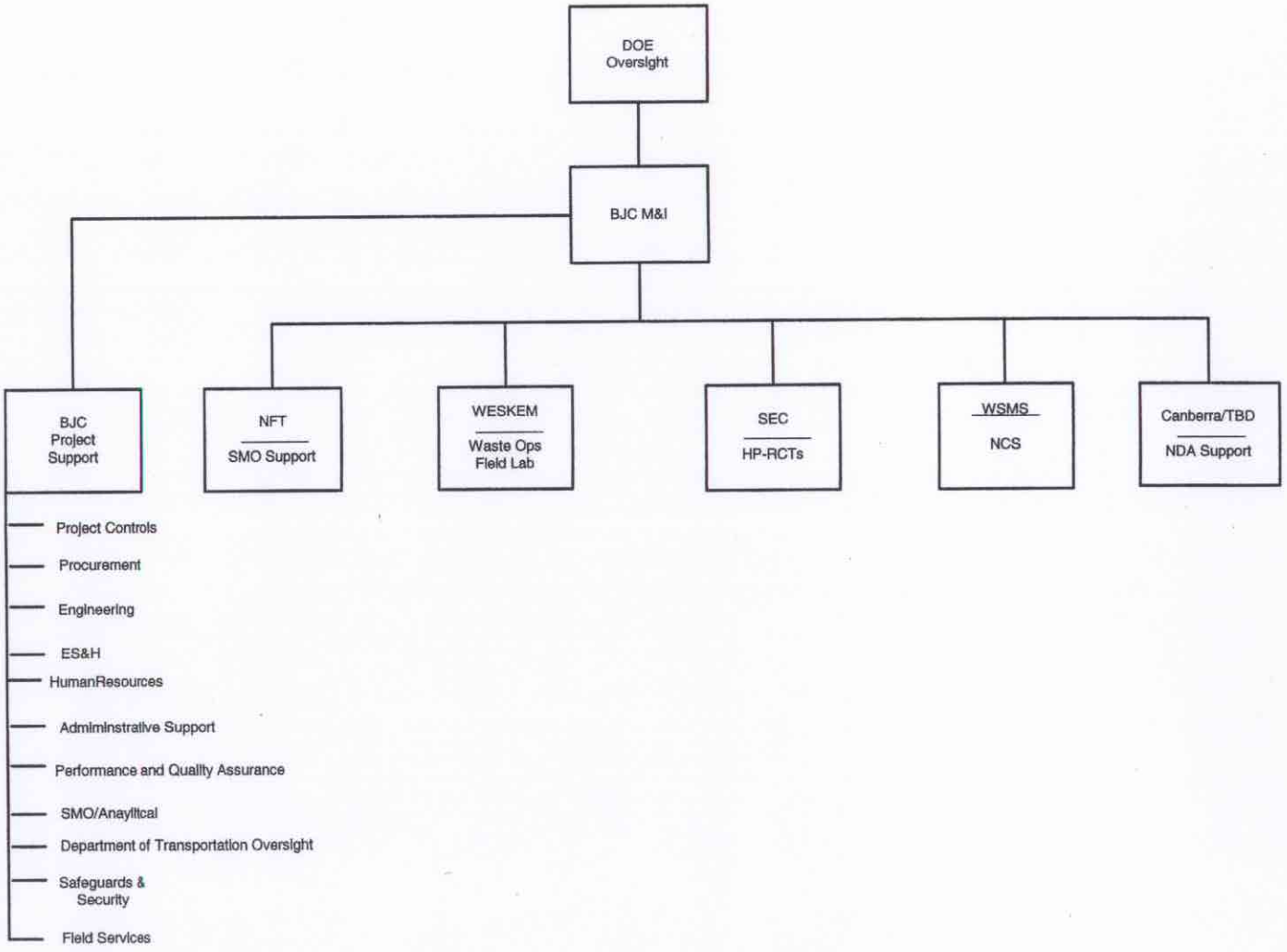
DMSA PROJECT MANAGEMENT AND INTEGRATION (M&I) ORGANIZATION



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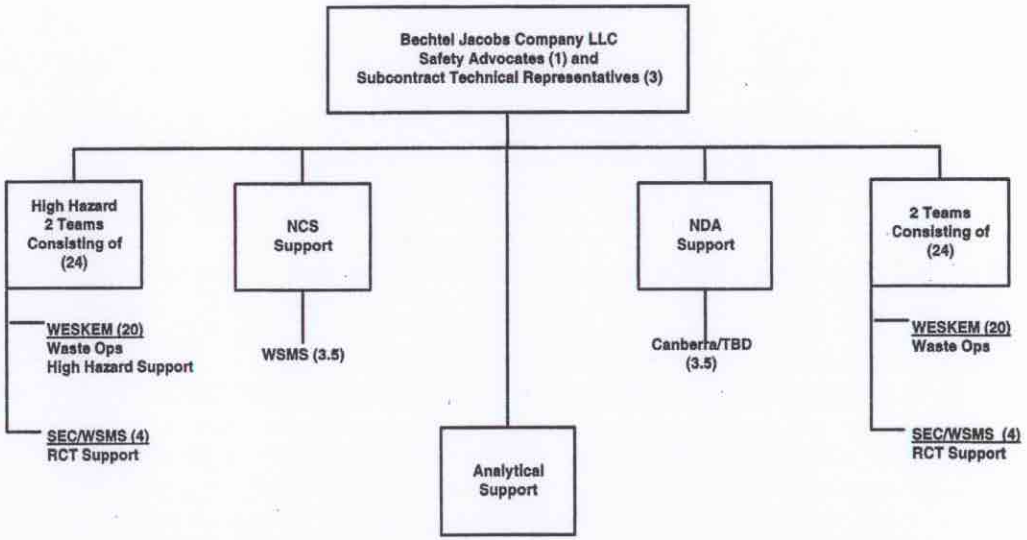
DMSA FIELD EXECUTION TEAMS



Field Resources
Total (61)

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Key Field Position Descriptions

BJC Subcontract Technical Representative (STR)

- The STR directly oversees and verifies the performance of the work. The STR is the primary interface with the subcontractors. The STR reports to the BJC Task Manager.

BJC Safety Advocate (SA)

- The SA provides support to the STR by overseeing the implementation of Integrated Safety Management and ES&H compliance in the field.

Subject Matter Experts (SMEs)

- SMEs will conduct DMSA inspections and inventories. Inspections will determine those materials that are readily identified as RCRA hazardous /TSCA wastes.

NCS Engineer

- The NCS Engineer is familiar with the physics of nuclear criticality and with the associated safety practices to furnish technical guidance to the DMSA management team appropriate to the scope of operations. In addition, the NCS engineer is skilled in the interpretation of data pertinent to nuclear criticality safety and familiar with operations to serve as an advisor to the DMSA team.

DMSA Inspector

- The DMSA Inspector has a minimum of five years experience in either cascade operations or process maintenance, dealing directly with the operation and/or maintenance of enrichment process components. The DMSA Inspector also has a minimum of ten years experience at an operating gaseous diffusion plant in any capacity.

NDA Specialist

- The NDA Specialist has a minimum of three months experience performing and interpreting NDA radiation surveys without required oversight and a minimum of three months gaseous diffusion plant experience.

RCTs

- The RCTs perform radiological surveys, perform dosimetry work, and support field work. RCTs ensure radiological contamination control requirements are met.

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V. MAJOR ASSUMPTIONS

The following list of assumptions were utilized in determining the current project cost and schedules. Exceptions or deviations from these assumptions could impact the scope, cost and schedule of this project:

1. Notice to proceed will be issued by January 1, 2001.
2. Appropriate subcontractor support and equipment for this project will be available to support the schedule.
3. The USEC laboratory will be utilized for the NCS characterization and radiological data.
4. USEC or offsite laboratories will be used for hazardous waste, PCB, and asbestos characterization.
5. Support facilities (change houses, break trailers, and office trailers) will be available. From the notice to proceed, the support facilities and infrastructure will take five months to become fully operational.
6. There will be sufficient space within PGDP to accommodate the additional facilities.
7. No recycling or reuse of materials, will be included as part of this project.
8. BJC will perform all DMSA work under the M&I approach utilizing existing subcontracts under a level of effort basis.
9. Authorization basis documents will be prepared/revised as required without impacts to the prescribed schedule.
10. Equipment will be dedicated to the DMSA work.
11. Highway transportation will be utilized for off-site transportation to the disposal facilities.
12. Appropriate assessments and readiness reviews will be performed as required and there will be no impacts to the prescribed schedule. No additional DOE Oak Ridge readiness reviews will be required.
13. No singularly contingent NCS items will be found during this project. If found, a NCSE will be generated and will be classified as a separate project.
14. Effort to manage classified items when identified will not be significant.
15. Areas may be deleased from USEC space to perform the mission of this project. The de-leased space will be provided in appropriate locations.
16. USEC Plant Operating Review Committee approvals as required will be timely and not impact the project schedule.
17. Twenty percent of the DMSAs will require RCRA hazardous permitting and subsequent RCRA hazardous closure.
    - For inside facilities with concrete flooring, the approach will be to wash the floor one time, sample for verification and assumed clean.
    - Sixteen fixed equipment systems are assumed to exist. This fixed equipment will be classified as part of the building and not removed as part of RCRA hazardous closure.
    - RCRA hazardous closure for the outside facilities will consist of removing the RCRA hazardous /Mixed Waste material. Two inches of soil/rock will be taken from the surface at the area of the RCRA hazardous /Mixed Waste. Sampling of the exposed sub-surface layer will be performed. The soil will then be backfilled and seeded. It is assumed that these actions will be sufficient to complete RCRA hazardous closure. For outside surfaces where concrete is found, the concrete will be washed one time and samples taken for verification and assume clean.

- DMSA OS-04 and DMSA OS-14 consists of radiologically contaminated rail cars and rail tankers that are located on the rail line. These DMSAs will have the soil removed, the sub-layer sampled, the soil backfilled.
- All RCRA hazardous closures will be limited to the existing DMSA boundaries.
- RCRA hazardous closure activity of any fixed structures or piping would be limited to the items within the DMSA boundary and isolated as necessary.

18. The 11 DMSAs worked by USEC will not require further NCS characterization.
19. The estimate and scope of the landlord activities for 160 DMSAs (Work Breakdown Structure 04.60.04.05.01) and the Waste/NCS Characterization resulting from the 11 DMSAs worked by USEC (WBS 04.60.04.05.03) are included in this project.
20. Once notice to proceed is given and funding provided, fieldwork will begin on a limited basis and accelerate, as resources become available and the personnel are trained. The project will be fully staffed within five months.
21. Newly generated RCRA hazardous waste treatable with available treatment technology will be treated within one year. The waste will then be disposed of within one year of completing treatment.
22. Activities under this project, except for treatment and disposal, will be covered under National Environmental Protection Agency (NEPA) categorical exclusions.
23. DOE will receive work plan approval from the Commonwealth of Kentucky no later than April 15, 2001.
24. The programmatic environmental assessment for waste shipments and treatments will be approved by May 2001.
25. DOE Order 435.1, *Radioactive Waste Management* exemptions will be granted in a timely manner for storage and disposal of low-level waste.
26. No additional air permits will be required for this project.
27. No additional controls beyond silt fences, straw bales, and gabions will be required for surface water sediment controls for the project.
28. No substantial delays will occur due to inclement weather.
29. Other organizations such as the Department of Justice will not impact scope, schedule, or cost.
30. UF_4 is not considered a "solid waste" under 40 CFR 261.4 (a).
31. Disposal of TSCA-PCB waste is funded under a separate project.
32. Solid waste will meet the PGDP C-746-U Landfill acceptance criteria for disposal.

VI. ENVIRONMENT, SAFETY AND HEALTH

The following outlines the BJC approach to ES&H for the DMSA Characterization/Remediation project.

ZERO ACCIDENT PERFORMANCE

BJC is dedicated to the concept that all accidents are preventable. Accordingly, BJC is committed to achieving and sustaining "Zero Accident Performance" through continuous improvement practices. "Zero Accident Performance" includes zero unpermitted discharges or releases with respect to protection of the environment. Our subcontractors are required to commit to this philosophy, as well.

INTEGRATED SAFETY MANAGEMENT SYSTEM

BJC is committed to implementing our Integrated Safety Management System (ISMS) that promotes the Company's core values and the principles set forth by DOE. The objective of ISMS is to systematically integrate ES&H protection into management and work practices at all levels so that workers, the public, and the environment are protected while assigned projects are accomplished.

As part of the ES&H plan for this project, an ISMS Matrix will be developed that will specify the appropriate sections of its work control and planning documents where the specific ISMS elements are addressed. This ensures that the work control and planning documents fully encompass the ISMS framework.

EMPLOYEE EMPOWERMENT

BJC has empowered its employees to adhere to all ES&H requirements. Employees and subcontractors will have the right and obligation to report unsafe conditions and to interrupt or Stop Work without fear of reprisal. No one will be asked to complete a task that an individual feels is unsafe or that may endanger the environment.

EMPLOYEE INVOLVEMENT

The ES&H Plan will describe how worker feedback and involvement in work planning will be used to enhance the safety and efficiency of the work performed. Processes will include the following:

- Safety suggestion,
- Near-miss reporting,
- Safety/toolbox meeting,
- Pre-job briefings, and
- Employee involvement in AHA.

ES&H PLAN

Provided below is an outline of elements included in the ES&H Plan that will be prepared prior to work mobilization. As part of plan development, an ES&H crosswalk will be completed that correlates all hazards that are anticipated in the performance of the scope of work with Work Smart Standards (WSS). This will ensure that the requisite protection for those hazards is addressed.

The plan will also describe how the Employee (or team) not only analyzes and solves problems, but also continuously improves the safety culture and conditions affecting the natural

environment. The plan also describes how feedback occurs. The basic tenets of ISMS and its other requirements shall be described fully in the ES&H Plan, and its underlying philosophy shall be implemented through these specific implementation strategies.

The ES&H Plan shall demonstrate written commitment to the implementation of the ISMS Program. The ISMS principles and core functions will be incorporated into the Work. The ES&H Plan shall incorporate the following management functions:

- a description of how Work within this scope will be performed shall be provided;
- the scope of all Work will be clearly understood before it is begun;
- the hazards associated with that Work will be identified, analyzed, and clearly understood;
- appropriate standards and requirements will be identified, tracked for changes, and applied to control the hazards associated with the Work to be performed;
- the Work will be performed in accordance with the standards and requirements identified;
- the process for reviewing, addressing, and communicating lessons learned will be in place and used; and
- a process for worker feedback and continuous improvement will be in place and used.

The ES&H Plan shall also demonstrate that these essential functions have been integrated into all Work:

- line management responsibility for ES&H;
- clear assignment of roles and responsibilities;
- competence commensurate with responsibilities;
- balanced priorities (i.e., cost and schedule not to take precedence over safety);
- clear identification of appropriate ES&H standards and requirements;
- assurance that all Work has been reviewed and is authorized; and
- hazard controls tailored to the Work being performed.

The ES&H Plan shall at a minimum include the following elements as applicable to its Scope of Work:

- Work Area characterization and description,
- Zero Accident Performance,
- employee empowerment,
- employee involvement,
- organization,
- reporting and record keeping,
- medical surveillance/monitoring,
- first-aid and medical services,
- ES&H training,
- ES&H performance measures and incentives,
- ES&H AHA,
- Facility/Site access control,
- environmental protection/compliance,
- emergency management,
- industrial safety requirements,
- industrial hygiene requirements,
- radiation protection requirements,

- radiation and environmental ALARA requirements and performance goals,
- chemical and radiological decontamination requirements,
- monitoring/sampling requirements, and
- pollution prevention requirements

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VII. QUALITY ASSURANCE

The existing DMSA Quality Assurance Plan (QAP) will be revised as part of this overall project plan to identify and document the current approach to ensure that the DMSA project is accomplished as efficiently as possible while obtaining adequate information for decision-making. The QAP will cover the scope of characterizing materials and remediating the DMSAs.

The QAP will identify and document the general quality requirements and the BJC approach to planning, implementation, assessment and decision-making. Likewise, a general Sampling and Analysis Plan (SAP) and a Waste Generation Plan (WGP) will be developed consistent with requirements to be followed throughout the life of the project.

The QAP will include the elements specified in 10 CFR 830.120, *Quality Assurance*, as applicable to project planning, implementation, and assessment. Each element will be taken into consideration to determine if existing systems and operations provide adequate controls. Where the systems in place might fail to produce quality results, additional actions will be developed by the project team and will be detailed in the QAP. The elements to be addressed are shown below.

Because of the size and duration of this project, the project will be divided into more manageable segments by individual or groups of DMSAs. Detailed outputs from the planning stages of each segment will be included in various DMSA-specific documents, including SAPs, WGPs, and project plans. Quality assurance/quality control details will be incorporated into the applicable DMSA-specific plans. When the work is underway, planning for the next segment will occur. The plan/implement/assess process will be reiterated as needed until the project is completed.

QUALITY MANAGEMENT

- Program. Specific members of the project team will be identified, and responsibilities for quality for each member have been identified.
- Training and Qualification. A matrix showing key personnel and the training required for each will be developed. Qualifications for the DMSA inspector, and NDA expert will also be identified for these key members.
- Quality Problems and Improvements. Responsibilities will be assigned to ensure all problems identified are addressed, including developing corrective actions to prevent reoccurrence if required.
- Documents and Records. QA records will be identified, and responsibilities for those records will be specified.

PERFORMANCE

- Planning. Planning will be conducted to encompass DQOs, health and safety controls, and potential noncompliance resolutions.
- Instructions and Procedures. Authorized procedures for field activities will be identified in the project plans. Sampling and analyses will be conducted by specified procedures to meet Waste Acceptance Criteria.
- Inventory, Identification and Control. Identification of containers and items will be detailed in DMSA-specific project plans; control of containers after sampling will be specified in DMSA-specific SAPs.
- Control of Measuring and Test Equipment. Health and safety monitoring and laboratory characterization equipment will be calibrated and maintained to existing procedures.

- Regulatory Compliance. Responsibilities for identifying and preventing potential noncompliances during the project have been delineated in the plan.
- Procurement. Responsibilities for procurement will be specified in the plan.
- Change Control. Changes, change control, and responsibilities will be addressed.

ASSESSMENT AND DECISION-MAKING

- Management Assessments. Readiness assessments meeting the requirements of the BJC procedure BJC-PQ-1510, *Readiness Evaluations*, will be conducted as required. Data verification, validation, and assessment activities will also be specified in the QAP.
- Independent Assessments. Independent assessments will be addressed in the QAP as needed.

VIII. COST ESTIMATE

DMSA Characterization / Remediation
Cost Plan, Roll-up
With NCS Characterization Effort Break Out
$ x 1000

	Fiscal Year						
Work Element Break Down	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**Total**
Management & Oversight	525	1,634	1,675	1,724	1,760	440	7,758
Infrastructure-Office/Break/Change Out Facilities	2,261						2,261
NCS/NDA/Analytical Support	**1,231**	**322**	**322**	**322**	**323**		**2,520**
Field Work – Waste Characterization	8,704	13,681	12,708	11,126	4,294	369	50,513
NCS Characterization	**802**	**1,437**	**1,239**	**1,191**	**725**		**5,394**
Treatment & Disposal		329	1,429	3,267	3,682	408	9,115
RCRA Closures	477		1,075	1,107	1,130	282	4,071
Total	**14,000**	**17,403**	**18,448**	**18,737**	**11,914**	**1,499**	**82,001**
Waste Characterization Total	11,967	15,644	16,887	17,224	10,866	1499	**74,087**
NCS Characterization Total	2,033	1,759	1,561	1,513	1,048		**7,914**

Note: In the Executive Summary (page # ix) the table at the bottom of the page shows the expected budget amounts by year to be authorized by DOE for the project. The table above shows how the dollars are expected to be spent based on the resource loaded schedule for the project.

APPENDIX A

WBS and Schedule

APPENDIX B

Work Package Outline

Work packages for executing fieldwork on DMSAs are based upon the Integrated Safety Management System for DOE, and will include the following elements at a minimum:

a. Scope of Work. This includes a description of work steps and/or work instructions.

b. Hazard Analysis. The hazard analysis is performed to identify potential hazards that may be encountered during performance of the work steps.

c. Hazard Controls. This element evaluates the hazards and develops and implements the hazard controls such as administrative controls, engineering controls, or personal protection equipment.

d. Confirmation of readiness and performance to safety perform work. This includes the necessary reviews, walkdowns, briefings, and approvals to verify readiness to perform work.

e. Lessons Learned Feedback and Results. This element allows for worker feedback to provide for continuous improvement of work performance.

In order to maintain the prepared 60-month schedule, KDEP would need to provide significantly expedited review and approval of the work packages, as contrasted to the typical 30 day review.

APPENDIX C

Characterization Report Description

The characterization reports will be submitted to KDEP after completion of the work activities for each DMSA. A characterization report would be generated for each DMSA. The characterization reports would include an inventory listing of items identified in the specific DMSA. For each item inventoried the report would also include the NCS classification and the following waste determinations: non waste resource material, solid waste, hazardous waste, PCB waste, asbestos waste, and radioactive waste. In addition, estimates or actual waste volumes and weights would be included for each container or item inventoried. The method of characterization would be identified as process knowledge, or direct analytical data would be referenced for validation and verification. Finally, the storage or disposition location would be identified for each item inventoried as of the date of the inventory report.

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