

R-009-204.2

281

**SOUTH GROUNDWATER CONTAMINATION
PLUME REMOVAL ACTION PHASE I
ALTERNATE WATER SUPPLY WORK PLAN**

05/01/90

WMCO/DOE-ORO

26

WORK PLAN

**SOUTH GROUNDWATER CONTAMINATION PLUME
REMOVAL ACTION
PHASE I
ALTERNATE WATER SUPPLY
WORK PLAN
FEED MATERIALS PRODUCTION CENTER**

Prepared by:

Westinghouse Materials Company of Ohio
Cincinnati, Ohio

For:

The United States Department of Energy
Oak Ridge Operations Office

TABLE OF CONTENTS

I. INTRODUCTION 1

II. DESCRIPTION 1

 1.0 REMOVAL ACTIONS. 1

 2.0 RELATED ACTIONS. 2

III. METHOD OF ACCOMPLISHMENT. 3

 1.0 ROLES OF PARTICIPANTS 3

 2.0 PLANNING ACTIVITIES 3

 3.0 FIELD ACTIONS 4

 4.0 OPERATIONS AND MAINTENANCE 4

IV. SAMPLING AND ANALYSIS 5

V. HEALTH AND SAFETY PLAN 6

IV. QUALITY ASSURANCE 6

Attachment I **South Groundwater Contamination Plume
Removal Action Schedule** 7

Attachment II **Chemical Parameters for
Phase I Water Quality** 8

Attachment III **Health and Safety Plan
for the South Groundwater
Contamination Plume
Removal Action Phase I
Alternate Water Supply** 9

I. INTRODUCTION

One of the identified operable units, Operable Unit 5 - Environmental Media, of the Feed Materials Production Center (FMPC) includes those environmental media that serve as migration pathways and/or environmental receptors of radiological or chemical releases from the FMPC. Important elements of this operable unit are the on-site and off-site areas of the regionally important Great Miami Aquifer that exhibit elevated levels of uranium. Because of the off-site location of portions of the uranium plume within developed areas south of the FMPC and the associated potential threat to human health, the Department of Energy (DOE) has initiated a removal action for this off-site area or "south plume" consistent with the implementation of the final remedial action.

The CERCLA 120 Consent Agreement requires a work plan be submitted for implementation of an alternate water supply (Phase I) if it is the selected alternative for the South Groundwater Contamination Plume Removal Action. This work plan satisfies this commitment in the CERCLA 120 Consent Agreement and is consistent with the requirements of 29 CFR 1910.120.

II. DESCRIPTION

1.0 Removal Actions

An Engineering Evaluation/Cost Analysis (EE/CA) in accordance with 40 CFR 300.415 has been prepared by Advanced Science Incorporated (ASI), under contract to the DOE, to evaluate removal action alternatives using the preliminary Remedial Investigation/Feasibility Study (RI/FS) data and to support the selection of a preferred alternative. The National Environmental Policy Act of 1969 (NEPA) requires that federal agencies include in their decision making processes appropriate and careful consideration of all environmental effects of proposed actions. The EE/CA was prepared so as to integrate the requirements of both the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and NEPA, and will be used by the DOE as the basis for remedy selection and implementation.

The preferred alternative identified in the EE/CA includes groundwater pumping with direct discharge to the Great Miami River, an alternative water supply to two currently affected industrial users and enhanced monitoring and institutional controls. This alternative will be implemented by the DOE for the South Groundwater Contamination Plume Removal Action after The United States Environmental Protection Agency (USEPA) approval of the EE/CA is received.

To support the efficient implementation of the removal action the cleanup activity have been segmented into distinct phases. Providing an alternate water supply to two industrial users in the south plume area with enhanced monitoring and institutional controls will be Phase I of the removal action. Phase II of the removal action tentative plans will be the design, construction, and operations of a system to pump groundwater from the South Groundwater Contaminated Plume to the FMPC and discharge the groundwater through the FMPC National Pollutant Discharge Elimination System (NPDES)

monitoring discharge outfall to the Great Miami River. Phase II will also include enhanced monitoring and institutional controls.

This work plan includes the plans for implementation of only the alternate water supply with enhanced monitoring and institutional controls (Phase I) of the South Groundwater Contamination Plume Removal Action.

2.0 Related Actions

The subsequent paragraphs include related actions other than those actions necessary to implement Phase II of the South Groundwater Contamination Plume Removal Action. Phase II tentative plans will be the installation and operation of a pumping and discharge system, and on-going monitoring and institutional controls program that will be in effect during the planned 5 year operation.

Construction on the second chamber of the storm water retention basin (SWRB) was completed in December of 1988. Stormwater runoff from the Production Area flows by gravity to the SWRB. The SWRB, designed to retain the runoff from a 10-year/24-hour rainfall event greatly reduces the contribution of storm water from the Production Area to Paddy's Run via the storm sewer outfall ditch. This flow is the major source of uranium contamination to the South Groundwater Contamination Plume.

The additional following actions have been taken to date:

The public has been notified of the South Groundwater Contamination Plume. Well and cistern sampling in the South Plume area has been performed by the Ohio Department of Health on the behalf of DOE.

An alternative water supply has been provided to a private residential well located along Willey Road in the northern portion of the plume.

An on-going ground water monitoring program is being conducted for a number of wells in the South Plume area. The results of the ground water analysis are being reported to the public.

Runoff from most of the surface of the FMPC Waste Storage Area is collected and sent to the FMPC waste water treatment system. The remaining surface and perimeter flows west and southwest to Paddy's Run. A separate removal action, Waste Pit Area Run-off Control, is currently underway by the DOE to control the remaining runoff and prevent it from flowing to Paddy's Run.

III. Method of Accomplishment

1.0 Roles of the Participants

The DOE is the lead agency for this removal action and will coordinate and execute this removal action. The U.S.EPA and the Ohio Environmental Protection Agency (OEPA) roles have been one of providing guidance and participation in the preparation of the CERCLA 120 Consent Agreement and technical information exchanges.

The U.S. EPA will review and approve the EE/CA document identifying the selected removal alternative for the South Groundwater Contamination Plume.

ASI, as a contractor to DOE, is conducting the RI/FS program including activities such as ground water sampling and development of a ground water flow model for the South Plume.

Westinghouse Materials Company of Ohio (WMCO), as the FMPC Operating and Maintenance contractor, is responsible to implement this removal action in a manner consistent with DOE and regulatory guidance.

As identified in the selected alternative, the Phase I will provide an alternative water supply to two industrial users. These two industrial users will be key participants during the implementation of this phase of the removal action.

2.0 Planning Activities

Activities that will be undertaken prior to the actual site work are planning, training, design, and management of the removal actions. These activities are required to render the area reasonably free of hazard to personnel or the environment until the RI/FS process has been completed and to determine if further action is required.

The following distinct engineering phases will be performed by WMCO to provide the necessary definition for development of accurate scope, cost, and schedule documents:

a. Project Planning

Included in this activity will be the preparation of detailed task listings and delineation of responsibilities to support the schedule given in Attachment I.

b. Removal Criteria

Detailed criteria, such as the location of the alternate water supply wells for Phase I, will be established necessary to complete design documents.

c. Design of Removal Action

Definitive design documents will be prepared for the removal action construction work.

d. Training of Personnel

All personnel involved will be trained in accordance with the Occupational Safety and Health Administration (OSHA) standards found in 29 CFR 1910.120.

e. Construction

All bid and award documents will be prepared for the removal action construction work along with the procurement of all equipment, materials and subcontractors necessary to complete the removal action construction work.

3.0 Field Actions

After approval of this work plan, design efforts will be finalized for the alternate water supply phase of the removal action. As part of the design efforts, the specific well locations for the alternate water supply for one of the two industrial users will be defined. A test well will be installed at selected sites to verify that the quality and capacity of the water to satisfy the technical requirements as stated in the agreement between one industrial user and the DOE. Attachment II lists the chemical constituents that the analyses will include. After the quality and capacity of the water is verified as meeting the technical requirements, two alternate water supply production wells will be installed and a performance acceptance test will be conducted by WMCO on each well installed.

Also, during the design efforts, the existing production well for the other industrial user will be inspected to identify well depth and verify operating parameters of the existing well. If necessary, an additional 4000 series monitoring well will be installed. The analysis of the inspection results will determine if the existing well can be modified to meet technical requirements or if the installation of a replacement well will be necessary. If a replacement well is necessary, the specific well location will be determined during the design efforts including activities to verify the quality and capacity of the water to satisfy technical requirements. After modification of the existing well or replacement of the existing well, WMCO will conduct a performance acceptance test.

During the performance acceptance testing of each system WMCO will take daily grab samples to verify the water quality meets the requirements as stated in the agreement between one industrial user and the DOE.

One industrial user will operate their new water supply system for a period of 60 days after the performance acceptance testing and prior to the DOE turning over the system to the industrial user. This "initial testing period" will include testing and confirmation of system performance by the industrial user.

4.0 Operations and Maintenance

After the initial testing period for both alternate water supplies for the two industrial users, each system will be turned over to the appropriate industrial user for operation, routine maintenance, and routine monitoring. After

turnover, the owner of each alternate water supply system will become the appropriate industrial user. As such, the owners will then be responsible for meeting the requirements, including monitoring, of the Safe Drinking Water Act (SWDA) for water supplies that have the potential of being used as drinking water.

The DOE, or its contractors/subcontractors, will be responsible for the corrective action maintenance activities for each system during the warranty period for the equipment. After the warranty period, the two industrial users will be responsible for the operation, routine monitoring and all maintenance for their alternate water supply systems for the life of each system.

During the initial testing period, WMCO will monitor each water supply well on a monthly basis to verify the water quality meets technical requirements. Following the initial testing period, each supply well will be monitored on a quarterly basis to verify the water quality meets technical requirements.

IV. SAMPLING AND ANALYSIS PLAN

At present, WMCO a quarterly monitoring program for selected off-site wells in the south plume study area. This quarterly monitoring of the selected off-site wells for uranium will continue until a modified monitoring program is implemented as part of the final remedial action.

The additional sampling process for the alternate water supply will be in accordance with the Analytical Laboratories Quality Assurance Plan L.C.N.-QAP, October 1987, and its implementing procedures. Split samples will be taken monthly for Phase I Initial Testing Period and quarterly during operations for Phase I. The split samples will be obtained by the WMCO Environmental Monitoring Group according to the procedures and protocol specified in the RI/FS Work Plan. The split samples will be sent to a certified independent laboratory for verification of the analysis performed by the FMPC Laboratory. The results from the certified lab will become part of the Administrative Record File.

The handling, documentation, storage, and analysis of the process control samples taken from the alternate water supply wells (Phase I) will be in compliance with the approved WMCO Environmental Compliance/Monitoring Procedures and sent to the FMPC Laboratory for analysis. In addition to the sampling for well siting and sampling during the performance acceptance tests, it is planned to include ongoing operational sampling for process control information of the supply wells during the operations of this phase of the removal action. The scope of this work will not interfere with any other activity in this area. The results from the present WMCO quarterly monitoring program and the routine process control monitoring by WMCO during operations of Phase I will be included in the FMPC Annual Environmental Monitoring Report. This report is available for review in the FMPC Reading Room.

The following sampling frequencies and analysis will be performed by WMCO personnel:

Phase I - Alternate Water Supply Wells

ACTIVITY	FREQUENCY	ANALYSIS
Well Siting	As Needed	Attachment II
Performance Acceptance Testing	Daily	Attachment II
Initial Testing Period	Monthly	Attachment II
Continuous Operations	Quarterly	Attachment II

This monitoring and sampling program will be performed in conjunction with the sampling and analysis activities for the Operable Unit 5 final remedial action.

V. HEALTH AND SAFETY PLAN

The work to be performed will be consistent with the Health and Safety Plan prepared for this removal action. A copy of this plan is provided as Attachment III of this work plan. The plan identifies, evaluates, and controls all safety and health hazards. In addition, it provides for emergency response for hazardous operations. The plan is consistent with 29 CFR 1910.120.

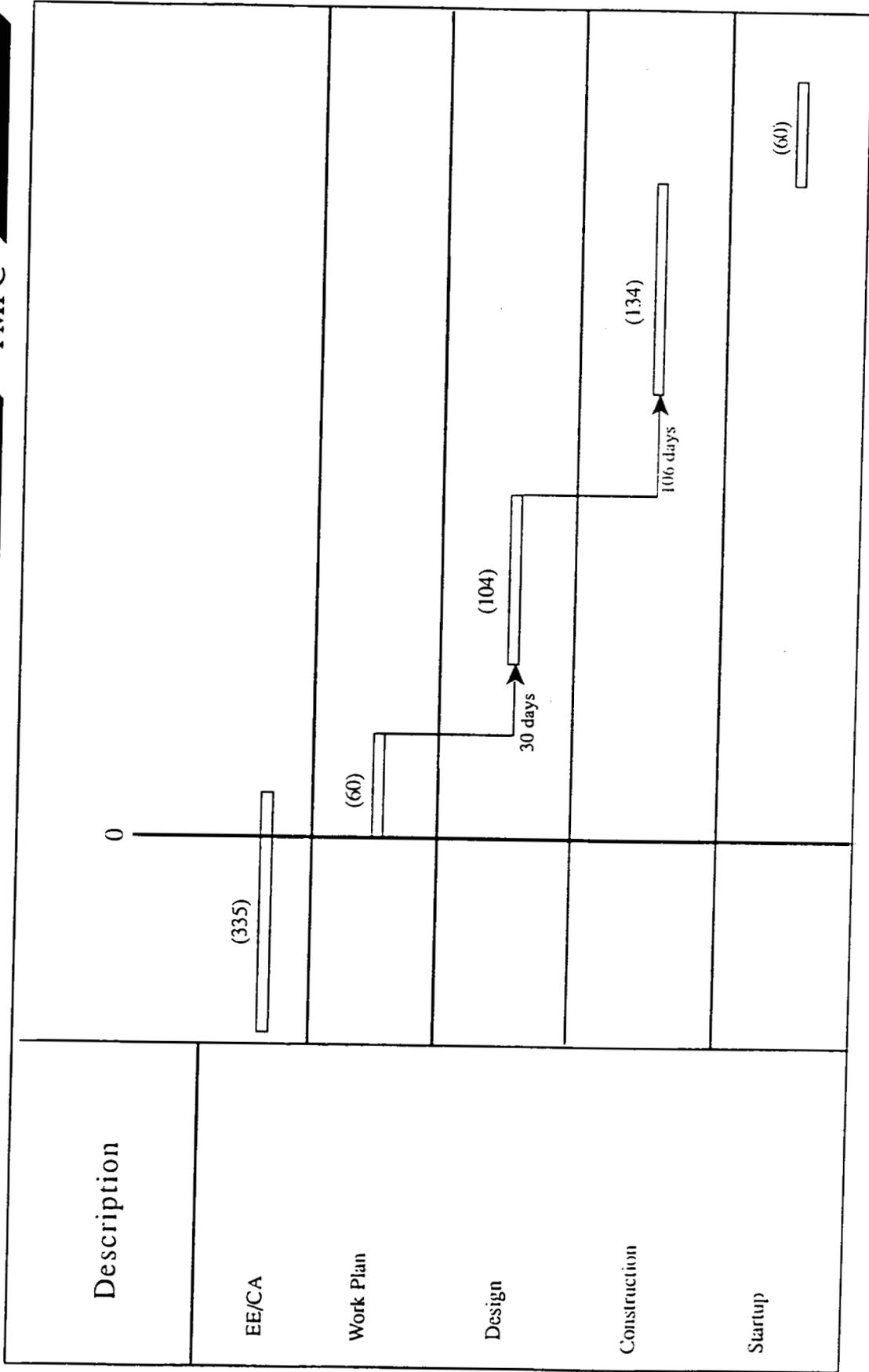
VI. QUALITY ASSURANCE

The South Groundwater Contaminated Plume Removal Action will be conducted according to requirements of the overall quality assurance program at the FMPC which is described in the site Quality Assurance Plan, FMPC 2139. The Quality Assurance Plan is based on the criteria specified in ASME NQA-1, Federal EPA Guideline QAMS-005/80 and DOE Orders 5600.6 and 5400.1. Specific quality assurance requirements will be incorporated into written and approved procedures and into personnel training. The Quality Assurance Department will conduct periodic surveillances to verify compliance.

South Groundwater Contamination Plume

Phase I: Alternate Water Supply

FMPC



Time Zero is USEPA's Approval of EE/CA document
 Note () durations are calendar days.

ATTACHMENT II

Chemical Parameters for Phase I

Water Quality

Analysis of the samples taken in support of Phase I will include the following chemical parameters:

Uranium	Total Iron
Specific Conductance	Sodium
Sulfate and Sulfit	Total Phosphate
Chloride	Total Silica
Total Hardness	Alkalinity
Calcium Hardness	Water Quantity
Magnesium Hardness	Water Pressure
Total Copper	Water Temperature

ATTACHMENT III

HEALTH AND SAFETY PLAN
FOR THE
SOUTH GROUNDWATER CONTAMINATION PLUME
REMOVAL ACTION
PHASE I
ALTERNATE WATER SUPPLY
FEED MATERIALS PRODUCTION CENTER

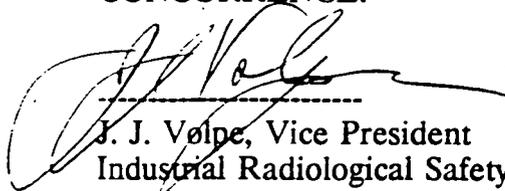
May 1990

APPROVAL:



W. A. Weinreich, Vice President Restoration
Westinghouse Materials Company of Ohio

CONCURRENCE:

 5/11/90

J. J. Volpe, Vice President
Industrial Radiological Safety and Training
Westinghouse Materials Company of Ohio

TABLE OF CONTENTS

1.0 Tasks To Be Performed 1

2.0 Site History 2

3.0 Task Specific Hazard Assessment 2

 3.1 Physical Hazards 2

 3.2 Chemical Hazards 2

 3.3 Radiation Hazards 2

4.0 Monitoring 2

 4.1 Goals 2

 4.2 Monitoring Equipment and Frequency of Monitoring . . . 3

 4.3 Action Limits 3

5.0 Personal Protective Equipment 4

 5.1 Activities at the well sites (Phase I) 4

 5.2 Installation of Piping and Pumping System (Phase I) 5

 5.3 Initial Testing of the Alternate Water Supply (Phase I) . . 6

 5.4 Monitoring of the Alternate Water Supply (Phase I) 7

6.0 Site Control 8

 6.1 Access 8

 6.2 Bioassay Samples 9

 6.3 Medical Monitoring 9

 6.4 Training Requirements 9

 6.5 Safety Meetings 10

7.0 Exposure Symptoms 10

8.0 Site Entry Procedures 10

9.0 Decontamination 11

10.0 Wastes 11

11.0 Contingency Plans 11

 11.1 Incidents or Injuries 11

 11.2 Pre-Emergency Planning 11

 11.3 Lines of Authority 11

 11.4 Evacuation 12

 11.5 Emergency Notification 12

 11.6 Fire, Explosion, or Medical Emergency 12

 11.7 Additional Information 12

12.0 Confined Space Entry 13

13.0 Approval and Compliance Statement 13

1.0 TASKS TO BE PERFORMED

This removal action will include two phases. This health and safety plan includes the plans for implementation of the alternate water supply with enhanced monitoring and institutional controls (Phase I) of the South Groundwater Contamination Plume Removal Action.

Alternate Water Supply (Phase I)

The specific well locations for the alternate water supply wells will be defined. A test well will be installed at each selected site. After acceptable sample analysis results, the production wells will then be installed. Also, one existing production well will be inspected to identify well depth and verify operating parameters of that existing well. Sample analysis results will determine if the existing well can be modified to meet the technical requirements or if the installation of a replacement well will be necessary. If a replacement well is necessary, the specific well location will be determined.

No hazardous concentrations of organic chemicals are expected above the maximum contaminant levels (MCL's), therefore no action to address organics is included.

The inspection and determining well location activities at the well sites will include:

<u>yes</u>	Disturb Surface Soil	<u>no</u>	Sample Surface Water
<u>yes</u>	Disturb Subsurface Soil	<u>no</u>	Sample Lagoons
<u>yes</u>	Use Heavy Equipment	<u>no</u>	Use Boat
<u>no</u>	Enter Confined Space	<u>yes</u>	Involve Radioactivity
<u>no</u>	Disturb Containerized Matter	<u>yes</u>	Involve Trenches

Installation of the piping and pumping system will:

<u>yes</u>	Disturb Surface Soil	<u>no</u>	Sample Surface Water
<u>yes</u>	Disturb Subsurface Soil	<u>no</u>	Sample Lagoons
<u>no</u>	Use Heavy Equipment	<u>no</u>	Use Boat
<u>no</u>	Enter Confined Space	<u>no</u>	Involve Radioactivity
<u>no</u>	Disturb Containerized Matter	<u>yes</u>	Involve Trenches

The initial testing of the system for pumping from the alternate water supply will:

<u>no</u>	Disturb Surface Soil	<u>no</u>	Sample Surface Water
<u>no</u>	Disturb Subsurface Soil	<u>no</u>	Sample Lagoons
<u>no</u>	Use Heavy Equipment	<u>no</u>	Use Boat
<u>no</u>	Enter Confined Space	<u>no</u>	Involve Radioactivity
<u>no</u>	Disturb Containerized Matter	<u>no</u>	Involve Trenches

The monitoring of the alternate water supplies will:

<u>no</u>	Disturb Surface Soil	<u>no</u>	Sample Surface Water
<u>no</u>	Disturb Subsurface Soil	<u>no</u>	Sample Lagoons
<u>no</u>	Use Heavy Equipment	<u>no</u>	Use Boat
<u>no</u>	Enter Confined Space	<u>no</u>	Involve Radioactivity
<u>no</u>	Disturb Containerized Matter	<u>no</u>	Involve Trenches

2.0 SITE HISTORY

The proposed well sites for Phase I are not located within the FMPC property lines area. The work area for Phase I is on the property of two industrial users of the groundwater, private property, along the highway, etc. There is no history of contaminants for Phase I.

3.0 TASK SPECIFIC HAZARD ASSESSMENT

A preliminary review of the area and soil and groundwater analysis surveys of the South Plume area by personnel performing the RI/FS field investigations indicated the potential hazards identified below. Prior to the initiation of the removal field activities, a reassessment of the conditions will be conducted to ensure that conditions are such that a safe working environment can be provided. All newly identified hazards will be addressed with the Industrial, Radiological, Safety and Training (IRS&T) representative(s) to determine the degree of hazard and if any additional requirements to this safety plan are needed.

3.1 Physical Hazards

- Heat Stress
- Overhead Hazards
- Underground Utilities

3.2 Chemical Hazards

<u>Contaminant</u>	<u>Primary Hazard</u>	<u>Action Limit</u>
Uranium-238	Inhalation/ Ingestion	5×10^{-12} uCi/ml ¹

Additional information on uranium is available on the Material Safety Data Sheets which are on file.

3.3 Radiation Hazards

The potential radiation hazards are U-238 and it's various daughter products.

4.0 MONITORING

4.1 Goals.

No significant generation of air activity is expected from the South Plume tasks. Radioactive contamination monitoring will be performed when soil and aquifer media is disturbed to ensure that the spread of contamination is minimized.

¹The action level of 5×10^{-12} uCi/ml is based on the DOE derived air concentration of 2×10^{-11} uCi/ml.

4.2 Monitoring Equipment and Frequency of Monitoring

4.2.1 Airborne Radioactivity

Air samples will be taken in the general area of the work areas, on and off DOE property, as required by the WMCO radiological safety technician. Local or breathing zone samples will be taken in the vicinity of possible leaks of the piping and pumping systems as they are air-pressurized for hydrostatic testing.

Air sampling will also be performed for long-lived alpha radioactivity if contamination levels exceed 500 cpm with a beta-gamma G-M probe. Minimum detectable activity shall be at least 2×10^{-12} uCi/ml.

4.2.2 Radioactive Surface Contamination

Radioactive surface contamination identified by WMCO Health & Safety personnel as they perform the survey required for the required radiation work permits. A health physics technician from WMCO will monitor exposures in all areas which exceed the 2 mR/hr action limit. There have been no areas outside the FMPC production area which have exceeded the 2 mR/hr action limit. Both Phase I and Phase II activities will be conducted outside and within the FMPC production area. Radioactive surface contamination will be monitored whenever soil is disturbed by drilling or digging.

4.2.3 Chemical Hazard

Exposure to significant chemical vapor concentrations are not expected with the tasks associated with the South Plume removal action. Air sampling for chemicals will be conducted as determined to be necessary by the Industrial Hygiene representative.

4.3 Action Limits

<u>Measurement</u>	<u>Limit</u>	<u>Action</u>
Removable contamination on open surfaces	1,000 dpm/100 cm ² (average)	Note 1
Fixed plus removable contamination	5,000 dpm/100 cm ²	Note 2

Notes

1. Area will be posted per DOE Order 5480.11.
2. Area will be posted per DOE Order 5480.11. Half-face air purifying respirators with HEPA filter cartridges.

5.0 PERSONAL PROTECTIVE EQUIPMENT

All employees in the task areas will wear the following personal protective equipment while performing the required tasks.

5.1 Inspection and determining well location activities at the well sites

<u>ITEM</u>	<u>NEED</u>	<u>JUSTIFICATION</u>
Air Purifying Respirator	No (yes)	Required if action levels are exceeded. or as specified by IRS&T representative
Cartridges: HEPA	No (yes)	Required if action levels are exceeded or as specified by IRS&T representative
Hard Hat	Yes	As needed for overhead work
Hearing Protection	Yes	During concrete breaking/cutting
Inner Gloves	No	
Rubber/Latex Boots	Yes	As needed to prevent contact with liquids
Leather-Palm Gloves	Yes	As needed for physical protection of hands
Rubber/Nitrile Gloves	Yes	As needed to prevent contact with liquids
Coveralls	Yes	
Plain Tyvek	No	
Process Coveralls	No	
PVC Gloves	No	
Supplied Air Respirator(SAR)	No	
Safety Glasses	Yes	Minimum Requirement
Safety Goggles or Face Shields	Yes	During hydrostatic testing and as needed to prevent contact with particulates
Safety Shoes	Yes	Minimum Requirement

5.1 Inspection and determining well location activities at the well sites (Cont'd)

<u>ITEM</u>	<u>NEED</u>	<u>JUSTIFICATION</u>
Saranex Tyvek	No	
Shoe Covers	No	

5.2 Installation of Piping and Pumping System

<u>ITEM</u>	<u>NEED</u>	<u>JUSTIFICATION</u>
Air Purifying Respirator	No (yes)	Required if action levels are exceeded. or as specified by IRS&T representative
Cartridges: HEPA	No (yes)	Required if action levels are exceeded. or as specified by IRS&T representative
Hard Hat	Yes	As needed for overhead work
Hearing Protection	Yes	During concrete breaking/cutting
Inner Gloves	No	
Rubber/Latex Boots	Yes	As needed to prevent contact with liquids
Leather-Palm Gloves	Yes	As needed for physical protection of hands
Rubber/Nitrile Gloves	Yes	As needed to prevent contact with liquids
Coveralls	Yes	
Plain Tyvek	No	
Process Coveralls	No	
PVC Gloves	No	
SAR	No	
Safety Glasses	Yes	Minimum Requirement
Safety Goggles	Yes	During hydrostatic testing and as needed

5.2 Installation of Piping and Pumping System (Cont'd)

<u>ITEM</u>	<u>NEED</u>	<u>JUSTIFICATION</u>
Safety Shoes	Yes	Minimum Requirement
Saranex Tyvek	No	
Shoe Covers	No	
Face Shield	No	

5.3 Initial Testing for Pumping from the Alternate Water Supplies

<u>ITEM</u>	<u>NEED</u>	<u>JUSTIFICATION</u>
Air Purifying Respirator	No (yes)	Required if action levels are exceeded. or as specified by IRS&T representative
Cartridges: HEPA	No (yes)	Required if action levels are exceeded. or as specified by IRS&T representative
Hard Hat	Yes	As needed for overhead work
Hearing Protection	Yes	During concrete breaking/cutting
Inner Gloves	No	
Rubber/Latex Boots	Yes	As needed to prevent contact with liquids
Leather-Palm Gloves	Yes	As needed for physical protection of hands
Rubber/Nitrile Gloves	Yes	As needed to prevent contact with liquids
Coveralls	Yes	
Plain Tyvek	No	
Process Coveralls	No	
PVC Gloves	No	
SAR	No	
Safety Glasses	Yes	Minimum Requirement

5.3 Initial Testing Pumping from the Alternate Water Supplies (Cont'd)

<u>ITEM</u>	<u>NEED</u>	<u>JUSTIFICATION</u>
Safety Goggles	Yes	During hydrostatic testing and as needed
Safety Shoes	Yes	Minimum Requirement
Saranex Tyvek	No	
Shoe Covers	No	
Face Shield	No	

5.4 Monitoring of the Alternate Water Supplies

<u>ITEM</u>	<u>NEED</u>	<u>JUSTIFICATION</u>
Air Purifying Respirator	No (yes)	Required if action levels are exceeded. or as specified by IRS&T representative
Cartridges: HEPA	No (yes)	Required if action levels are exceeded. or as specified by IRS&T representative
Hard Hat	Yes	As needed for overhead work
Hearing Protection	Yes	During concrete breaking/cutting
Inner Gloves	No	
Rubber/Latex Boots	Yes	As needed to prevent contact with liquids
Leather-Palm Gloves	Yes	As needed for physical protection of hands
Rubber/Nitrile Gloves	Yes	As needed to prevent contact with liquids
Coveralls	Yes	
Plain Tyvek	No	
Process Coveralls	No	
PVC Gloves	No	

5.4 Monitoring of the Alternate Water Supplies (Cont'd)

<u>ITEM</u>	<u>NEED</u>	<u>JUSTIFICATION</u>
SAR	No	
Safety Glasses	Yes	Minimum Requirement
Safety Goggles	Yes	During hydrostatic testing and as needed
Safety Shoes	Yes	Minimum Requirement
Saranex Tyvek	No	
Shoe Covers	No	
Face Shield	No	

6.0 **SITE CONTROL**

6.1 Access

Many of the task sites are not located within the FMPC property lines area. The work area for Phase I is on the property of two industrial users of the groundwater and on private property. The work area includes wells on private property with a piping system running back to the the two industrial users. Access to these private properties will be through previously approved agreements and/or easements. While the tasks are performed on these private properties, access to the areas will be limited to personnel trained and certified to perform such work activities as regulated by 29 CFR 1910.120.

The site work area related to this removal action will be, if necessary, organized into a specific zone to further reduce the potential spread of chemical or radiological contamination. This is referred to as an Exclusion Zone.

The Exclusion Zone is the zone of high potential hazard due to physical or chemical dangers. Access to the Exclusion Zone will be restricted by the supervisor-in-charge to trained and certified employees, as regulated by 29 CFR 1910.120, who are required to enter in order to perform their job functions. There will be different Exclusion Zones for the various tasks. The Exclusion Zone will marked with barrier tape or other easily recognizable devices. The zone may be expanded if airborne hazards are detected. All areas requiring the use of respiratory protection are included in the exclusion zone. Entrance shall be limited to one area and controlled by the supervisor-in-charge.

281

If necessary, IRS&T representatives will establish a Contamination Reduction Zone, consisting of step-off pads, at the exit to the Exclusion Zone. This zone will be used for removal of disposable personal protective equipment and for cleaning of contaminated equipment.

6.2 Bioassay Samples

WMCO personnel and WMCO subcontractors involved in this project are required to participate in a routine periodic urine assay program. Any suspected exposure to hazardous substances shall be reported and require additional sampling.

6.3 Medical Monitoring

In accordance with 29 CFR 1910.120 OSHA requirements, all WMCO and WMCO subcontractor personnel are required to participate in a medical monitoring program which includes:

- o A baseline medical examination
- o Annual medical examination
- o Medical examinations may be required after potential exposures.
- o WMCO respirator clearance for users

Personnel involved in this project shall be identified by name and badge number. Prior to start of work, each shall be individually subject to a medical surveillance approval to work by the Director, Medical Services.

Prior to the initiation of actual work, the names of all personnel that may be involved in the actual work will be supplied to WMCO Director of Medical Services.

6.4 Training Requirements

All WMCO and WMCO subcontractor personnel assigned to the tasks will, as a minimum, meet the following training requirements including:

- o Documented safety meeting to review this health & safety plan including site specific hazards and procedures
- o WMCO radiation safety training
- o WMCO respiratory training and fit test or equivalent approved by WMCO Industrial Hygiene
- o 40-hour OSHA training
- o 8-hour annual refresher training
- o 8-hour supervisory training (for supervisors)
- o 24-hour supervised field experience

6.5 Safety Meetings

A safety meeting, which must be documented, shall be conducted prior to the start of each day's work during; Phase I activities, inspection and determining well locations the well sites and installation of the piping and pumping system; and Phase II activities, inspection and determining well locations the well sites and installation of the piping and pumping system. These safety meetings will cover the following applicable subjects:

- work operations
- personnel protective equipment
- all monitoring data
- hazard communications
- monitoring tests and results
- decontamination
- task organization
- physical stress
- emergency procedures
- communications
- general safety
- housekeeping

7.0 **EXPOSURE SYMPTOMS**

Exposure to low levels of radioactivity do not produce acute exposure symptoms. Such exposures may cause delayed effects such as cancer. Such exposures are to be kept as low as reasonably achievable. No treatment is anticipated for the predicted contaminants and concentrations. See Section 11 for contingency plans.

Exposure symptoms for the materials at this site are on file and are described in the appropriate MSDS and Guidelines.

8.0 **SITE ENTRY PROCEDURES**

During the subsequent activities the following procedures apply: Phase I activities, inspection and determining well locations the well sites and installation of the piping and pumping system.

- o Identify exclusion zone, contamination reduction zone, and break area.
- o Perform daily safety meeting to familiarize team with site specific hazards.
- o Discuss alternate communications signals (if applicable).
- o Perform respirator check out and fit test prior to use.
- o Use buddy system. Teams of at least two individuals will be used for all activities within exclusion zone.

9.0 DECONTAMINATION

Equipment for decontamination of radiological or chemical hazards shall be kept available in the area surrounding the Exclusion Zone if such is determined necessary by supervisor or by either Radiological Safety or Industrial Hygiene prior to the initiation of the activity.

10.0 WASTES

Radiological wastes include, but are not limited, to drill cuttings which may contain radiological elements.

All potentially contaminated waste materials resulting from site activities will be collected and placed in drums or other containers.

Drums or containers shall meet DOE 49 CFR Parts 171-178, EPA, 40 CFR Parts 264-265 and 300, and OSHA requirements. Hazard warning shall be immediately applied to all drums as specified by WMCO management/supervisors and WMCO Solid Waste Compliance.

11.0 CONTINGENCY PLANS

11.1 Incidents or Injuries

For the possible intake of radiological substances see statement on submission of urine samples for radiation exposures in WMCO Standard Operating Procedure (SOP) 11-C-245.

Incidents of injuries involving potential intake of other hazardous substances shall be reported to supervisor and the WMCO Medical Section by the involved employee and an Incident Investigation Report completed by the involved employee.

11.2 Pre-Emergency Planning

During the training and pre-work safety meetings, all employees involved in this task shall be trained and reminded of the provisions of the plant emergency procedure, alarm signals and communications, evacuation routes, emergency reporting, and the importance of maintaining communications with FMPC emergency preparedness personnel via 2-way radio or cellular phone.

11.3 Lines of Authority

The supervisor in charge has the primary responsibility for the prevention of emergency conditions. In the event that an emergency does occur, the individual involved or observing the condition shall immediately notify a supervisor, the communications center or the WMCO Assistant Emergency Duty Officer (AEDO). The AEDO is responsible for ensuring that corrective actions have been implemented, the appropriate personnel notified, and reports completed as required.

11.4 Evacuation

In the event of an evacuation of the removal site, which is off DOE property, is required the supervisor-in-charge will be responsible for notifying all personnel involved. Personnel performing these tasks off DOE property will proceed to the rally point as designated by the supervisor-in-charge. The FMPC designated rally points within the DOE property are shown on Figure I. When the supervisor-in-charge is informed that an all-clear condition has been achieved, personnel will be released from the rally point.

If there are any tasks performed on the DOE property the 2-2, 2-2 shall be sounded over the plant alarm system; a voice message will follow over the Emergency Message System instructing employees to go to their designated rally point. Personnel shall immediately proceed to the rally point. The FMPC designated rally points within the DOE property are shown on Figure I. Personnel will follow instructions given by the rally point coordinator and participate in the accountability process. When an all-clear condition has been achieved, personnel will be released from the rally point.

11.5 Emergency Notification

All emergencies shall be reported immediately. Emergencies can be reported by telephone dialing extension (ext.) 6511; by contacting the communications center via two-way radio; or by pulling a manual fire alarm.

11.6 Fire, Explosion, or Medical Emergency

In the event of a fire, explosion or medical emergency, the communication center shall be notified immediately by manual fire alarm, two-way radio, or by calling ext. 6511. The communication center operator will activate the emergency response team and dispatch them to the appropriate location. Personnel in the immediate area should evacuate to a safe position and await instructions.

11.7 Additional Information

11.7.1 Hospitals

The WMCO Medical Facility (Building 53) is the primary choice for on-site injuries. Off-site emergencies can also be handled utilizing the FMPC facilities. The WMCO ambulance will transport the injured to the nearest hospital if necessary. WMCO maintains an emergency response capability which includes an ambulance and EMT medical personnel.

11.7.2 Emergency Telephone Numbers

The following telephone numbers are FMPC site telephone numbers.

Ambulance: 738-6511 or 738-6512
Hospital: 738-6511 or 738-6512
Fire: 738-6511 or 738-6512

<u>Name</u>	<u>Number</u>	<u>Radio</u>
Emergency Response	738-6511	
Industrial Hygiene	738-6207	357
Radiological Safety	738-6889	355
Fire and Safety	738-6235	303
Assistant Emergency Duty Officer (AEDO)	738-6431 or 738-6295	202

12.0 CONFINED SPACE ENTRY

A Confined Space Entry Permit will not be required for the activities to implement this removal action.

13.0 APPROVAL AND COMPLIANCE STATEMENT

This site specific safety plan was produced for the use of WMCO employees and subcontractors. It was intended for the FMPC and specifically for personnel performing the following activities:

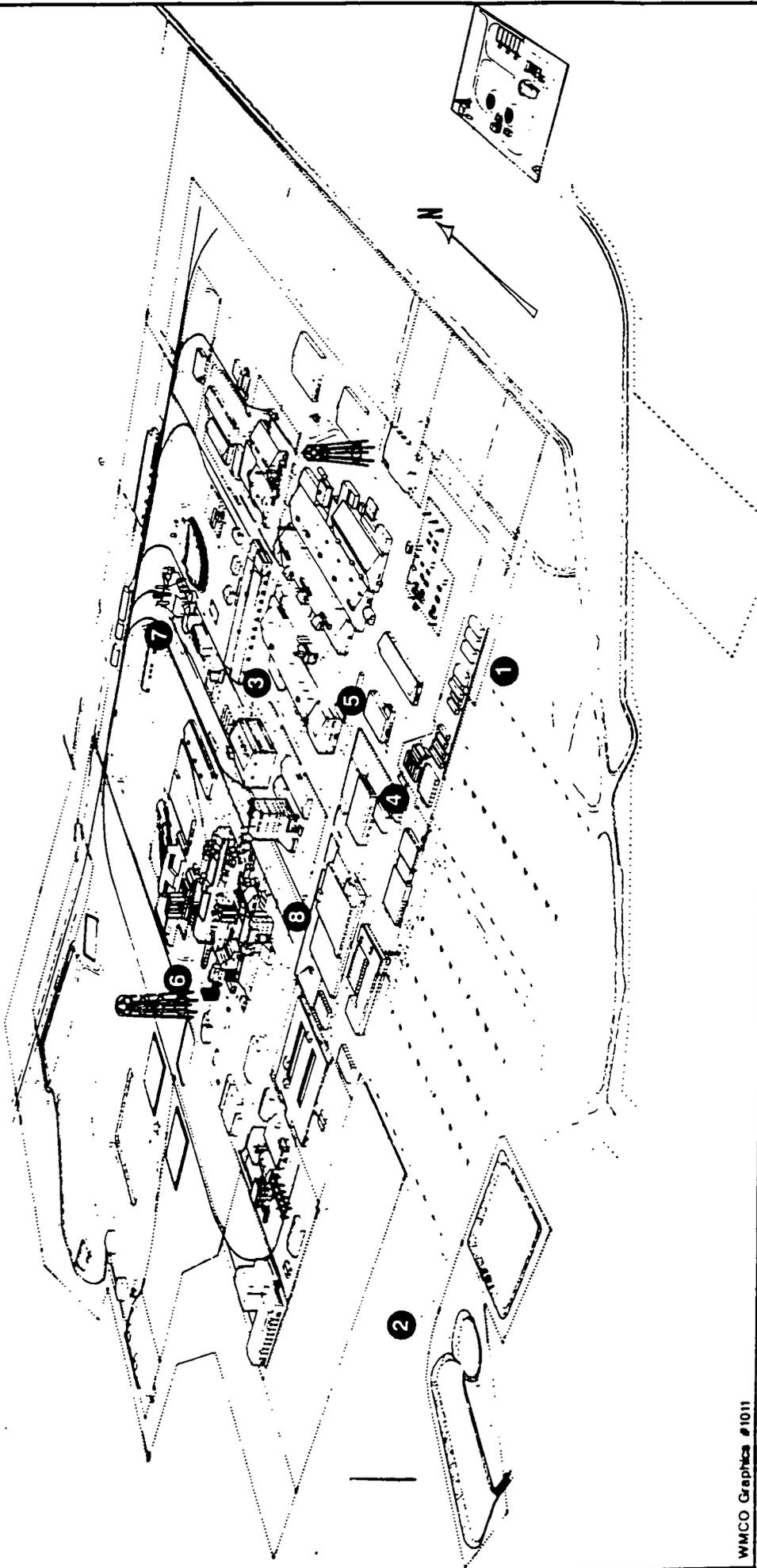
- The inspection and determining well location activities at the well sites
- Installation of the piping and pumping system
- The initial testing of the system for pumping from the alternate water supply
- The monitoring of the alternate water supply wells

The personnel performing these tasks must read and understand the attached site specific health and safety plan and agree to follow its provisions¹. Written documentation with signatures of those personnel performing these tasks must be maintained.

¹Compliance with the provisions of the Health and Safety Plan may be audited through announced or unannounced site visits. Be sure that the provisions of this safety plan are implemented and document the reasons for field actions/changes when they are necessary. Site visits may be performed by the DOE or WMCO personnel.

FIGURE 1

FMPC RALLY POINTS



WMCO Graphics #1011