

**RESPONSE TO USEPA'S COMMENTS ON PLANT
2/3 AND PLAN 9 WORK PLANS**

07/18/90

WMCO/DOE-FMPC

27

ENCLOSURE

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RESPONSE TO USEPA'S COMMENTS
ON PLANT 2/3 AND PLANT 9
WORK PLANS

General Comments

1. Comment:

The work plans should reference removal #1 and the Consent Agreement.

Response:

Will modify. Plant 9 work plan includes the reference. It will be added to the Plant 2/3 work plan.

2. Comment:

The work plan needs to include procedures for how the work will proceed if the additional contaminants are found under plants 2/3 and 9, as with Plant 6.

Response:

Will modify. Currently, perched water samples from Plant 2/3 and Plant 9 are being taken and will be sent to a certified contractor laboratory for full HSL and a total radionuclides analysis. If HSL/VOC contaminants are found in the borings, an investigation will be made to determine if treatment is necessary. An investigation similar to the one discussed in the Modified Plant 6 Removal Action Work Plan will be developed to include perched water from other plants. If it is determined that HSL/VOC treatment is necessary, the extracted water will be isolated from other plant wastewaters by pumping into above grade holding tanks at each plant. The water would then be transferred from the holding tanks to a HSL/VOC treatment unit. However, the investigation may determine that another location is more desirable or that localized treatment units may be more feasible.

3. Comment:

Since the interconnection of perched water is not understood, the contaminants from surrounding buildings should be included in the contaminant list.

Response:

No modification required. At this time, the full contaminant list is not known. However, the results of the full HSL and total radionuclides sampling will provide a more accurate contaminant list for the perched water than listing the suspected contaminants from the surrounding buildings.

4. Comment:

Information collected under this removal action must be made a part of the administrative record.

Response:

No modification required. Statement is included in Section V in all work plans. All data, sampling and process, will be included in the Administrative Record File for the appropriate removal action.

5. Comment:

As specified in U.S. EPA's May 8, 1990 letter, the removal work plans need to include a strategy for coordination with the remedial action for the production area (operable unit #3). This strategy needs demonstrate compatibility with the remedial action, data transfer, and validation procedures. U.S. DOE needs to assure that persons responsible for operable unit #3 are involved with the removal action and the data being generated. The operable unit manager and remedial response quality assurance personnel need to review removal activities and data collection for consistency of the removal action with the final remedial action technical adequacy, and quality of the work performed.

Response:

Will modify. Removal Action Work Plans will be modified to include a separate section entitled "Integration with the Operable Unit".

6. Comment:

All work performed under this removal action needs to be in accordance with National Contingency Plan (NCP) and current SUPERFUND guidance.

Response:

Will modify to include the following statements. All work performed under all removal actions at the FMPC will be in accordance with the NCP (Final Rule) and the OSWER Directive 9360.0-03B, SUPERFUND REMOVAL PROCEDURES, Rev. 3. This current SUPERFUND guidance document reflects the regulations as written in the proposed NCP. Where there is a conflict between the March 1990

version of the NCP, the Final Rule, and this current SUPERFUND guidance, the FMPC policy is to adhere to those procedures stipulated in the Final Rule of the NCP.

7. Comment:

Many issues raised by the health and safety plans were not addressed as work to be performed under the work plans.

Response:

No modification required. The "Tasks To Be Performed" sections of the health and safety plans include the same tasks as those activities listed in each of the work plans section IV, Field Actions.

PLANT 2/3

WORK PLAN COMMENTS

8. A. Comment:

Section I: What is the depth of the low permeability layer that the perched water is lying on?

Response:

No modification required. The depth of the low permeability layer that the perched water is lying on will be shown on the hydrogeologic cross sectional views. These views are presently being prepared as part of the Remedial Investigation Report for Operable Unit 3 as stated in the RI/FS Work Plan. These views will show:

1. The depth at which each boring was stopped, and whether the bottom of the boring reached what, was considered to be a low permeability layer or stopped at the maximum 20 foot depth.
2. The soil types encountered.
3. Uranium levels in the soil.
4. The levels where perched water was encountered.
5. The surface level of the underlying Great Miami Aquifer (GMA).
6. The water level in the underlying GMA.

B. Comment:

Sample results from this layer should be presented.

Response:

No modification required. Will be available with hydrogeologic cross sectional views.

C. Comment:

Has this layer adsorbed contaminants and contaminating interstitial water?

Response:

No modification required. Cross sections of the contamination found in the soil will be included in the cross-sections being prepared as part of the approved RI/FS for Operable Unit 3 as part of the RI/FS Work Plan.

D. Comment:

Is this water migrating to underlying groundwater systems?

Response:

No modification required. At this time, it has not been determined if the perched water has migrated to the underlying groundwater systems. As stated in Section II Item 4.0 of the Work Plan, the purpose of this Removal Action is to control the potential for vertical migration to the GMA by reducing the hydrostatic head of the perched water.

9. Comment:

Section I: A cross-sectional view of the hydrogeologic units should be included.

Response:

No modification required. Cross-section views do not presently exist. As stated in response to Comment 8, they are being prepared as part of the RI/FS Work Plan, and used to evaluate the type of extraction system which will be installed.

10. Comment:

Section I: The results of the soil sampling should be included.

Response:

No modification required. Will be available with hydrogeologic cross sectional views. Cross-section views do not presently exist. As stated in response to Comment 8, they are being prepared as part of the RI/FS Work Plan.

11. Comment:

Section II, 1.0, Page 1, paragraph 1: It is not clear what is meant by the statement "so that penetration through the cover soil does not occur." This statement should be further explained.

Response:

Will modify. Changed to read: This area of investigation is intentionally confined to only 20 feet below grade in the production areas. This is to prevent cross-contamination from the contaminated perched water to the lower Great Miami Groundwater Aquifer by puncturing the confining layer of material between them during boring activities.

12. A. Comment:

Section II, 4.0, page 2 paragraph 6: The proposal for pumping groundwater and transferring it to existing wastewater treatment units fails to include estimates of volume, pumping rates, and contaminants that are to be removed during treatment. Details of the monitoring/metering systems, start/stop controls, provisions for manual override, and treatment techniques should be provided.

Response:

No modification required. The perched groundwater under plant 2/3 has been determined to have significant concentrations of uranium, warranting this removal action. Existing wastewater treatments have the capability to remove uranium and other metals. However, the concentration levels of other contaminants are not known at this time. For this reason, preliminary sampling is scheduled prior to the implementation of this removal action to determine other contaminants of concern and to determine type and level of treatment required.

The detail design of the pumping/treatment systems will be completed after approval of this work plan and after the preliminary sampling analysis results are known. The design of the pumping units will be based on the pumping units previously used in the Plant 6 Perched Water Removal Action. The boring with the highest pumping rate in Plant 6 pumped approximately 35-40 gallons per day

prior to the temporary termination of the pumping. The volume of water to be removed is not expected to be significant in relation to the flow capability in the existing treatment facilities.

B. Comment:

Since volatile organic compounds (VOCs) were detected in the Plant 6 pumped water, which necessitated the stoppage of pumping on April 23, 1990, the possibility of encountering VOCs and what action will be taken should also be presented.

Response:

Will modify. Currently, perched water samples from Plant 2/3 and Plant 9 are being taken and will be sent to a certified contractor laboratory for full HSL and a total radionuclides analysis. If it is determined that additional treatment is required, the water will be treated. This information will be included in the work plans.

13. Comment:

Section II, 4.0, page 4, paragraph 1: The types of contaminants that would be removed by the "processing" in Plant 8, specific details regarding the treatment, and treatment efficiency should be outlined.

Response:

Will modify. See the Response to Comment 12.

14. Comment:

Section IV, 4.0, page 4, paragraph 1: Inspection and testing of the adjacent existing sumps for leaks and general condition should occur prior to transferring the contaminated groundwater into them. Procedures for testing of the sumps should be presented. Additionally, alternatives to use of the sumps should be proposed in the work plan in event that testing indicates that their integrity is questionable.

Response:

Will modify. Because of the concern being raised over VOC's, the pumping systems will be designed to discharge water into an above grade holding tank rather than into sumps as previously stated in the work plan. The work plan will be revised to incorporate this change.

15. Comment:

Section II: The options of what to do if highly contaminated soils are found should be discussed in the work plan.

Response:

No modification required. Only soil necessary to implement the construction of the pumping and piping systems required to support the removal action will be excavated in accordance with FMPC Site Procedure FMPC-720. Other soil contamination will be addressed by the final remediation under Operable Unit 3. The Consent Agreement Under CERCLA 120 and 106(a) defines Removal Action #1 as only removing contaminated water from under FMPC buildings not soil.

16. Comment:

Section II: The criteria for stoppage of pumping should be presented.

Response:

Will modify to add "As stated in the Consent Agreement Under CERCLA 120 and 106(a), if the DOE determines that any activities or work being implemented under this Consent Agreement may create an imminent threat to human health or the environment from the release or threat of release of a hazardous substance, pollutant, contaminant, or hazardous constituent, it may stop any work or activities for such period of time as needed to respond and take whatever action is necessary to abate the danger." Reporting to the USEPA will be in accordance with Section XXIII of the Consent Agreement.

Will add "Pumping will also be terminated if the sampling results reveal that after pumping operations begin the contaminant levels in the perched water become lower than the established criteria which are to be developed based on the Operable Unit 3 Baseline Risk Assessment."

17. Comment:

Section III: If pumping is ever terminated, what sampling will be performed to monitor water quality from that point on. Provision for notification of work stoppage to U.S. EPA must be in accordance with notification requirements of the 1990 Consent Agreement.

Response:

Will modify. Sampling to monitor water quality after pumping has been terminated will include quarterly sampling for the identified contaminants and total radionuclides. This sampling will continue for two years after termination of pumping, as long as the contaminant levels in the sample results are below the

established criteria for the FMPC. If this is the reason for termination of pumping, reporting to the USEPA will be in accordance with the Consent Agreement Under CERCLA 120 and 106(a) Section XXIV.

18. Comment:

Section V, page 4: Water samples should be analyzed for Technetium-99, since recycled uranium has been extensively refined at Plant 2/3.

Response:

Will modify. Analysis for Technetium-99 is included as part of the analysis for total radionuclides. The complete list of contaminants for a total radionuclide analysis will be included as an attachment in the work plan.

19. Comment:

Section V, page 4: Sampling frequency must be specified. References to facility Standard Operating Procedures (SOPs) is not adequate. Procedures must be outlined in work plan.

Response:

Will modify Section V of the work plan. Sampling frequency will be included in the work plan for the RI/FS validated sampling and the FMPC process control sampling as follows:

Sampling Frequency

System start up and verification	Weekly
First 6 months of system operation	Monthly
After first 6 months of system operation	Quarterly

The samples shall be collected quarterly after the first 6 months of system operation until such time as the sampling results indicate that the contaminant levels are below the established criteria for the FMPC. Samples shall also be collected quarterly for two years after termination of pumping activities to verify that the contaminants have been removed.

20. Comment:

Sections V and VII, pages 4 & 5: All samples should be collected and analyzed in accordance with the site's approved Quality Assurance Project Plan (QAPP). Modifications to the approved QAPP should be proposed in detail.

Response:

Will modify. The Quality Assurance Project Plan (QAPP) approved as part of the Remedial Investigation (RI) Work Plan is the only USEPA approved QAPP for the FMPC. The procedures and protocol specified in this document will be followed for the collection, analysis, and reporting of only the samples to be sent to the certified independent laboratory (the RI/FS validated sample data).

21. Comment:

Attachment 1 (schedule): Note 1 should define what is meant by "concentration... becomes insignificant as compared to background."

Response:

Will modify by deleting statement.

HEALTH AND SAFETY PLAN COMMENTS:

PLANT 2/3

22. Comments:

Section 3.2: The section on radiation hazards does not address the possibility that Technetium-99 may be present in the contaminated water as a result of past refinery operations of uranium.

Response:

No modification required. Technetium-99 is not a significant radiological hazard at the FMPC. The highest ratio of Technetium-99 activity is approximately 1:3. Since the limits for this isotope are about 100 times higher than uranium, the total dose contribution in the worst case is about 0.3%. Its effect on the Health and Safety Plan is negligible.

23. Comment:

Section 3.3, page 3: The list of potential contaminants should include the VOCs, if they could be present under this plant as with plant 6.

Response:

No modification required. Preliminary sampling is scheduled prior to the implementation of the removal action to determine contaminants of concern and to determine type and level of treatment required. However, There are not expected to be any VOCs beneath Plant 2/3 for two reasons: 1) Plant 2/3 is

located 1100 feet away from Plant 6 where VOCs were found and it is unlikely that VOCs would travel that far, and 2) soil borings analysis results from in and around Plant 2/3 collected in April 1990 did not show any VOCs greater than 3 ppb in Boring #1193. Therefore, these chemicals will not be considered as potential hazards in Plant 2/3 Health and Safety Plan at this time.

24. Comment:

Section 3.3, page 3: Local background levels for suspected contaminants should be specified along with the regulatory exposure limits. If contaminants are expected to be concentrated in water, soils, or both, this should be annotated in the list of suspected contaminants.

Response:

Will modify. The table on page 3 will be amended to include local background levels of suspected contaminants in ambient air along with the regulatory exposure limits.

25. Comment:

Section 4.2.1 - 4.2.4, page 4: The specific type of atmospheric monitoring instrumentation for volatile inorganic and organic detection with the projected probe assemblies should be specified. The sensitivities of the selected probes and/or detection assemblies should be specified, with relative response restrictions or non-detect limitations of each assembly.

Response:

No modification required. There are specific FMPC Health and Safety Procedures which include this information. These procedures are applicable to all task specific health and safety plans. This information does not have to be included in every task specific health and safety plan. The type of equipment that will be used for this purpose include Draeger tubes, MIE RAM-1 photometer, and an HNu-101 photoionization instrument. According to 29 CFR 1910.120 (b)(4)(E) this type of information does not need to be included.

26. Comment:

Section 4.2.2, page 4: Due to possibility of releasing radionuclides (and other hazardous substances) during the high pressure testing of the process lines, the utilization of real time monitoring for radionuclides should be used in addition to the proposed monthly wipe tests.

Response:

Will modify. Direct frisks and/or field swipe surveys will be performed on potential leak sites during pressure testing. The Health and Safety Plan will include this information.

27. Comment:

Section 4.3, page 5: The regulated exposure limits for uranium should also be presented in detector scale equivalents (either counts per minute or mRem per hour).

Response:

Will modify. In the level column of 4.3 on removable surface contamination, with the insert "or 2,000 cpm with portable frisker" before "(average)".

28. Comment:

Section 4.3: The proposal for use of air concentrations in excess of 10 percent derived air concentrations (DAC) as action levels for donning respirators needs to be evaluated in accordance with the As Low As Reasonably Achievable philosophy (ALARA).

Response:

No modification required. The selection of 25% of the DAC is an acceptable practice in accordance with ALARA philosophy. This general rule has been successfully applied at the FMPC to provide no detectable dose to personnel, verified by bioassay results. This is due to conservative factors in the estimation of uptake based on the air samples results. For example, particle sizes tend to be much larger than 1 AMAD. Also, personnel minimize the time they spend in Airborne Radioactivity Areas, which are posted at 10% of the DAC. The wearing of a respirator at levels lower than 25 % DAC is an option for all personnel.

29. Comment:

Sections 5.1-5.4, pages 6-9: Process coveralls are not chemical or liquid resistant. Saranex, or equivalent, is the minimum acceptable protective clothing. If concentrated process material could be encountered, a butyl rubber or heavy PVC splash suit would be an appropriate outer garment.

Response:

No modification required. Use of Saranex or equivalent chemical resistant clothing is level B or C protection. Since skin contact with chemicals specified in Section 3.0 will be extremely unlikely and, even if it occurred, would not create a serious

skin hazard, there is no justification for level B or C skin protection. The current background levels of air contaminants are well under Permissible Exposure Limits (PELs) and action levels. Periodic monitoring for these contaminants will be conducted during the tasks listed in accordance with the FMPC Health and Safety procedures. This periodic monitoring will determine if switching to Saranex or equivalent chemical resistant clothing is warranted.

For operations where splashing or skin contact with wet materials is probable face shields, PVC splash suits, and rubber gloves will be required.

30. Comment:

Sections 5.1-5.4, pages 6-9: Inner gloves should always be used unless their usage creates an additional risk greater than the potential for contact with skin irritants. Due to the potential presence for corrosive or caustic hazardous substances, this additional layer of protection is appropriate.

Response:

Will modify. Inner gloves will be used underneath leather palm gloves but not beneath rubber gloves. To prevent skin rashes from latex rubber, only PVC inner gloves shall be used.

31. Comment:

Sections 5.1-5.4, pages 6-9: Escape packs should be included on the list of the equipment list. Additionally, self-contained breathing apparatus (SCBAs) should be used during the initial phases of the investigation for better protection against radionuclides, asbestos, and chemical hazards until the working environment is fully characterized and is deemed to be stable.

Response:

No modification required. The working environment is already well enough characterized to be able to dispense with the SCBA/ELSA requirement for unknown atmospheres. The revised table on page 3 includes suspect contaminants and their local background levels.

32. Comment:

Section 6.1.1: The posting requirements for external radiation levels are not cited.

Response:

Will modify. Add: "Radiation Area > 5 mrem/hr".

33. Comment:

Section 6.2: The method for estimating internal dose if bioassay action levels are exceeded needs to be presented. Internal dose due to technetium-99 needs to be addressed, if it is found to be a contaminant.

Response:

No modification required. Internal dosimetry calculation are made by the Dosimetry group in accordance with DOE Order 5480.11 and appropriate models. It is not appropriate to include a procedure for internal dosimetry in a task specific safety plan.

34. Comment:

Sections 6.1-6.2, page 10: 8.0, page 12: 9.0, page 13: A site map delineating specific zones of proposed activity, exclusion zones, site and radiological control zones, and the decontamination corridors should be included. The scale and clutter of information on the site overview map does not permit effective representation of the work area.

Response:

Will modify. A layout map of Plant 2/3 will be provided delineating contamination area boundaries (if needed) otherwise just exclusion area boundaries and step off pad locations (as determined by FMPC radiological safety technicians).

35. Comment:

Section 9.0, page 13: Decontamination procedures and stations should be specified, as well as decontamination line monitoring procedures. This information should also be represented in a diagram. The use of chemical decontamination solutions, other than soap and water, is appropriate.

Response:

Decontamination will be performed consistent with FMPC Standard Operating Procedures for similar operations. In addition, specific RI/FS decontamination procedures for the Facilities Testing Program will be followed when appropriate.

36. Comment:

Section 11.0, page 13: A map delineating the route to the nearest medical facility or medical assistance station should be shown in the section regarding emergency procedures. Emergency equipment locations should also be specified on a site work map.

Response:

Will Modify. A map delineating the route to the FMPC Medical Facility will be provided.

37. Comment:

Section 12, page 15: The section regarding confined spaces should address the additional considerations for ambient monitoring and more protective respiratory safety requirements. The specific tasks to be performed in confined spaces should be outlined. Since the tasks involve disruption of process lines and containerized materials, there is a chance for greater potential hazards.

Response:

Will modify. The specific tasks to be performed in confined spaces will be outlined in the Health and Safety Plan. The FMPC procedures ESH-P-41-0046 and FMPC-516 will be followed.

38. Comment:

Attachment: A summarization of the health risks, potential exposure pathways, and practical first aid for each potential hazardous substance is more effective than full reproduction of the Material Safety Data Sheets (MSDS).

Response:

Will modify. The MSDS will not be reproduced to be include as attachments. A summary on key health risks, exposure rates, and first aid will be developed for known substances and included in the work plan.

PLANT 9

WORK PLAN COMMENTS

39. Comment:

Section I: The vertical and lateral extent of the perched water needs to be identified. Figure 1 indicates that the perched water may be localized in the vicinity of well 1324. Is this correct?

Response:

No modification required. Additional sampling has been proposed and approved as part of the RI/FS Facilities Testing Program. Nine additional borings are scheduled under RI/FS on a 30 foot grid east and adjacent to the recovery well planned for extraction of the contaminated water. If any of the wells are "wet",

they will be used to monitor the effects of pumping the recovery well. Results of these additional borings will be integrated into the Plant 9 removal action as they become available.

40. Comment:

Section I: Is the water at 1324 perched water or does it represent a groundwater mound?

Response:

No modification required. Based on the fact that no perched water was found on the west side (Boring #1323) or the south side (Boring #1325) of the secondary containment enclosure west of Boring #1324, it is assumed that the water in Boring #1324 represents a groundwater mound.

41. A. Comment:

Section I: What is the depth of the low permeability layer that the perched water is lying on?

Response:

No modification required. The depth of the low permeability layer that the perched water is lying on will be shown on the Hydrogeologic cross sectional views. These views are presently being prepared as part of the Remedial Investigation Report for Operable Unit 3 as stated in the RI/FS Work Plan. These views will show:

1. The depth at which each boring was stopped, and whether the bottom of the boring reached what, was considered to be a low permeability layer or stopped at the nominal 20 foot layer.
2. The soil types encountered.
3. Uranium levels in the soil.
4. The levels where perched water was encountered.
5. The surface level of the underlying Great Miami Aquifer (GMA).
6. The water level in the underlying GMA.

B. Comment:

Sample results from this layer should be presented.

Response:

No modification required. Will be available with hydrogeologic cross sectional views.

C. Comment:

Has this layer adsorbed contaminants and contaminating interstitial water?

Response:

No modification required. Cross sections of the contamination found in the soil will be included in the cross-sections being prepared as part of the RI/FS for Operable Unit 3 as part of the RI/FS Work Plan and used to evaluate the type of extraction system which will be installed.

Comment:

Is this water migrating to underlying groundwater systems?

Response:

No modification required. At this time, it has not been determined if the perched water has migrated to the underlying groundwater systems. As stated in Section II Item 4.0 of the Work Plan, the purpose of this Removal Action is to control the potential for vertical migration to the GMA by reducing the hydrostatic head of the perched water.

42. Comment:

Section I: A cross-sectional view of the hydrogeologic units should be included.

Response:

No modification required. Cross-section views do not presently exist. As stated in response to Comment 8, they are being prepared as part of the RI/FS Work Plan.

43. Comment:

Section I: The results of the soil sampling should be included.

Response:

No modification required. Will be available with hydrogeologic cross sectional views. Cross-section views do not presently exist. As stated in response to Comment 8, they are being prepared as part of the RI/FS Work Plan.

44. Comment:

Section II, 4.0, page 3 paragraph 6: The proposal for pumping groundwater and transferring it to existing wastewater treatment units fails to include estimates of volume, pumping rates, and contaminants that are to be removed during treatment. Details of the monitoring/metering systems, start/stop controls, provisions for manual override, and treatment techniques should be provided.

Response:

No modification required. The perched groundwater under plant 2/3 has been determined to have significant concentrations of uranium, warranting this removal action. Existing wastewater treatments have the capability to remove uranium and other metals. However, the concentration levels of other contaminants are not known at this time. For this reason, preliminary sampling is scheduled prior to the implementation of this removal action to determine other contaminants of concern and to determine type and level of treatment required.

The detail design of the pumping/treatment systems will be completed after approval of this work plan and after the preliminary sampling analysis results are known. The design of the pumping units will be based on the pumping units previously used in the Plant 6 Perched Water Removal Action. The boring with the highest pumping rate in Plant 6 pumped approximately 35-40 gallons per day prior to the temporary termination of the pumping. The volume of water to be removed is not expected to be significant in relation to the flow capability in the existing treatment facilities.

45. Comments:

Section II The activities described in the section are vague. Transmissivity and hydraulic conductivity should be quantified in order to determine how effective pumping will be in relieving the hydraulic head in the perched zone and reduction of flow into the unsaturated zone.

Response:

No modification required at this time. A slug test is scheduled for Boring #1324 during the month of August. This test will quantify the transmissivity and hydraulic conductivity in order to determine how effective pumping the recovery well will be in relieving the hydraulic head in the perched water zone.

46. Comments:

Section II: Depending upon the extent of the perched zone, the amount of hydraulic head built up in the perched zone, and the hydraulic properties of the perched aquifer, more than one extraction well may be required.

Response:

No modification required. Additional sampling has been proposed and approved as part of the RI/FS Facilities Testing Program. Nine additional borings are scheduled under RI/FS on a 30 foot grid east and adjacent to the recovery well planned for extraction of the contaminated water. If these wells are "wet", they wells will be used to monitor the effects of pumping the recovery well. Results of these additional borings will be integrated into the Plant 9 removal action as they become available.

47. Comments:

Section II: The installation of trenched and/or drains should be evaluated.

Response:

Same response as Comment 46.

48. Comment:

Section II: Options if highly contaminated soils are found should be discussed.

Response:

No modification required. Only soil necessary to implement the construction of the pumping and piping systems required to support the removal action will be excavated in accordance with FMPC Site Procedure FMPC-720. Other soil contamination will be addressed by the final remediation under Operable Unit 3. The Consent Agreement Under CERCLA 120 and 106(a) defines Removal Action #1 as only removing contaminated water from under FMPC buildings not soil.

49. Comment:

Section II: The criteria for stoppage of pumping should be outlined. Work stoppage notification requirements should be outlined in the work plan.

Response:

Will modify to add "As stated in the Consent Agreement Under CERCLA 120 and 106(a), if the DOE determines that any activities or work being implemented under this Consent Agreement may create an imminent threat to human health or the environment from the release or threat of release of a hazardous substance, pollutant, contaminant, or hazardous constituent, it may stop and work or activities for such period of time as needed to respond and take whatever action is necessary to abate the danger." Reporting to the USEPA will be in accordance with Section XXIII of the Consent Agreement but these requirements need not be repeated in the work plan.

50. Comment:

Section III: If pumping is ever terminated, what sampling will be performed to monitor water quality from that point on?

Response:

Will modify. Sampling to monitor water quality after pumping has been terminated will include quarterly sampling for the identified contaminants and total radionuclides. This sampling will continue for two years after termination of pumping, as long as the contaminant levels in the sample results are below the established criteria for the FMPC. If this is the reason for termination of pumping, reporting to the USEPA will be in accordance with the Consent Agreement Under CERCLA 120 and 106(a) Section XXIV.

51. Comment:

Section IV, 2.0, page 3, paragraph 5: Additional support should be provided for the assumption that only one collection well is required.

Response:

No modification required. A slug test is scheduled for Boring #1324 during the month of August. This test will quantify the transmissivity and hydraulic conductivity in order to determine how effective pumping the recovery well will be in relieving the hydraulic head in the perched water zone.

52. Comment:

Section IV, 4.0, page 3 paragraph 7: The expected rate of pumping and volume capacity of the sumps should be given. An estimate or anticipated range should be given before implementing the removal action.

Response:

Will modify. Because of the concern being raised over VOC's, the pumping systems will be designed to discharge water into an above grade holding tank rather than into sumps as previously stated in the work plan. The work plan will be revised to incorporate this change.

53. Comment:

Section IV, 4.0, page 3, paragraph 7: The work plan should address where contaminated groundwater will be pumped in the event that the integrity of the adjacent sump is found to be deficient after it is tested. Procedures for testing of the sumps should also be included in the removal work plan.

Response:

Will modify. Because of the concern being raised over VOC's, the pumping systems will be designed to discharge water into an above grade holding tank rather than into sumps as previously stated in the work plan. The work plan will be revised to incorporate this change.

54. Comment:

Section V, page 4: Sampling frequency must be specified. References to facility Standard Operating Procedures (SOPs) is not adequate. Procedures must be outlined in work plan.

Response:

Will modify. Sampling frequency will be included in the work plan for the RI/FS validated sampling and the FMPC process control sampling as follows:

Sampling Frequency

System start up and verification	Weekly
First 6 months of system operation	Monthly
After first 6 months of system operation	Quarterly

The samples shall be collected quarterly after the first 6 months of system operation until such time as the sampling results indicate that the contaminant levels are below the established criteria for the FMPC. Samples shall also be

collected quarterly for two years after termination of pumping activities to verify that the contaminants have been removed.

55. Comment:

Sections V and VII, page 4: All samples should be collected and analyzed in accordance with the site's approved Quality Assurance Project Plan (QAPP). Modifications to the approved QAPP should be proposed in detail.

Response:

Will modify. The Quality Assurance Project Plan (QAPP) approved as part of the Remedial Investigation (RI) Work Plan is the only USEPA approved QAPP for the FMPC. The procedures and protocol specified in this document will be followed for the collection, analysis, and reporting of only the samples to be sent to the certified independent laboratory (the RI/FS validated sample data).

56. Comment:

Attachment 1 (schedule): Note 1 should define what is meant by "concentration... becomes insignificant as compared to background."

Response:

Will modify by deleting statement.

HEALTH AND SAFETY PLAN COMMENTS

PLANT 9

57. Comment:

Section 3.2: The statement that the thorium content in affected areas is expected to be low relative to uranium needs to be substantiated with data. Historically, thorium work did not occur in plant 9 and the health impacts per unit of activity of thorium is much greater than uranium. DACs are up to 20 times lower, surface contamination limits are 5 times lower, and external radiation exposure rates are considerably higher.

Response:

Will modify. Add to section 4.2.2, "Swipes taken from newly opened systems that are suspected of having been used for thorium processing will be analyzed for total thorium."

58. Comment:

Section 3.3, page 3: The list of potential contaminants should include the VOCs, if they could be present under this plant as with plant 6.

Response:

Will modify. It is conceivable that the same VOCs measured in the Plant 6 perched water could extend to Plant 9 just north of Plant 6. Based on the bulk water samples collected in Plant 6 the table in section 3 of the health and safety plan will be modified.

59. Comment:

Section 3.3, page 3: Local background levels for suspected contaminants should be specified along with the regulatory exposure limits. If contaminants are expected to be concentrated in water, soils, or both, this should be annotate in the list of suspected contaminants.

Response:

Will modify. The table on page 3 will be amended to include local background levels of suspected contaminants in ambient air along with the regulatory exposure limits.

60. Comment:

Section 4.2, pages 3-4: The specific type of atmospheric monitoring instrumentation for volatile inorganic and organic detection with the projected probe assemblies should be specified. The sensitivities of the selected probes and/or detection assemblies should be specified, with relative response restrictions or non-detect limitations of each assemblies.

Response:

No modification required. There are specific FMPC Health and Safety Procedures which include this information. These procedures are applicable to all task specific health and safety plans. This information does not have to be included in every task specific health and safety plan. The type of equipment that will be used for this purpose include Draeger tubes, MIE RAM-1 photometer, and an HNu-101 photoionization instrument.

61. Comment:

Section 4.2, pages 3-4: Due to possibility of releasing radionuclides (and other hazardous substances) during the high pressure testing of the process lines, the utilization of real time monitoring for radionuclides should be used in addition to the proposed monthly wipe tests.

Response:

Direct frisks and/or field swipe surveys will be performed on potential leak sites during pressure testing. The Health and Safety Plan will include this information.

62. Comment:

Section 4.2, pages 3-4: Surface tests and area surveys should be performed following those activities that will generate radionuclide dusts, in addition to the recommended weekly and monthly surveys.

Response:

Will modify. After "as they are opened", add "and following dust generating activities."

63. Comment:

Section 4.3, page 4: The regulated exposure limits for uranium should also be presented in detector scale equivalents (either counts per minute or mRem per hour).

Response:

Will modify. In the level column of 4.3 on removable surface contamination, with the insert "or 2,000 cpm with portable frisker" before "(average)".

64. Comment:

Section 4.3: The selection of action levels for unspecified contaminants needs to be justified in light of possible thorium contamination. The surface limit that would require the donning of respirators is 100 times the permissible limit for thorium and the air concentration (25% DAC for uranium) is 5 DAC for thorium-232. The use of air concentration limits in excess of 10% DAC (the posting requirement) for action levels for respiratory protection needs to be evaluated in accordance with the ALARA principle.

Response:

No modification required. The use of the uranium DAC is supported by analyses performed on swipes and air samples in plant 9 for total thorium. The selection of the DAC is an acceptable practice in accordance with the ALARA philosophy. This general rule has been successfully applied at the FMPC to provide no detectable dose to personnel, verified by bioassay results. This is due to conservative factors in the estimation of uptake based on the air sample results. For example, particle sizes tend to be much larger than 1 AMAD. Also, personnel minimize the time they spend in Airborne Radioactivity Areas, which are posted at 10% of the DAC. The wearing of a respirator at levels lower than 25% DAC is an option for all personnel.

65. Comment:

Sections 5.1-5.3, pages 5-7: Process coveralls are not chemical or liquid resistant. Saranex, or equivalent, is the minimum acceptable protective clothing. If concentrated process material could be encountered, a butyl rubber or heavy PVC splash suit would be an appropriate outer garment.

Response:

No modification required. Use of Saranex or equivalent chemical resistant clothing is level B or C protection. Since skin contact with chemicals specified in Section 3.0 will be extremely unlikely and, even if it occurred, would not create a serious skin hazard, there is no justification for level B or C skin protection. The current background levels of air contaminants are well under Permissible Exposure Limits (PELs) and action levels. Periodic monitoring for these contaminants will be conducted during the tasks listed in accordance with the FMPC Health and Safety procedures. This periodic monitoring will determine if switching to Saranex or equivalent chemical resistant clothing is warranted.

For operations where splashing or skin contact with wet materials is probable faceshields, PVC splash suits, and rubber gloves will be required.

66. Comment:

Sections 5.1-5.3, pages 5-7: Inner gloves should always be used unless their usage creates an additional risk greater than the potential for contact with skin irritants. Due to the potential presence for corrosive or caustic hazardous substances, this additional layer of protection is appropriate.

Response:

Will modify. Inner gloves will be used underneath leather palm gloves but not beneath rubber gloves. To prevent skin rashes from latex rubber, only PVC inner gloves shall be used.

67. Comment:

Sections 5.1-5.3, pages 5-7: Escape packs should be included on the list of the equipment list. Additionally, self-contained breathing apparatus (SCBAs) should be used during the initial phases of the investigation for better protection against radionuclides, asbestos, and chemical hazards until the working environment is fully characterized and is deemed to be stable.

Response:

No modification required. The working environment is already well enough characterized to be able to dispense with the SCBA/ELSA requirement for unknown atmospheres. The revised table on page 3 includes suspect contaminants and their local background levels.

68. Comment:

Sections 6.1, page 8: 8.0, page 10: A site map delineating specific zones of proposed activity, exclusion zones, site and radiological control zones, and the decontamination corridors should be included. The scale and clutter of information on the site overview map does not permit effective representation of the work area.

Response:

Will modify. A layout map of plant 9 will be provided delineating contamination area boundaries (if needed) otherwise just exclusion area boundaries and step off pad locations (as determined by FMPC radiological safety technicians).

69. Comment:

Section 6.1.1: The posting requirements for external radiation levels are not cited.

Response:

Will add: "Radiation Area > 5 mrem/hr".

70. Comment:

Section 6.2: Bioassay work is not effective for detection/dose quantification of thorium compounds. In vivo counting is more appropriate.

Response:

Will modify. Add to the end, "If sample analyses indicate that thorium levels in air or on surfaces were sufficient to deliver more than eight DAC-hours to an individual, in vivo monitoring and/or other bioassay measurements will be performed on that individual as deemed appropriate by FMPC Dosimetry".

71. Comment:

Section 6.2: Methods that will be used for internal dose estimation if bioassay action levels are exceeded should be specified.

Response:

No modification required. Internal dosimetry calculation are made by the Dosimetry group in accordance with DOE Order 5480.11 and appropriate models. It is not appropriate to include a procedure for internal dosimetry in a task specific safety plan.

72. Comment:

Section 9.0, page 11: Decontamination procedures and stations should be specified, as well as decontamination line monitoring procedures. This information should also be represented in a diagram. The use of chemical decontamination solutions, other than soap and water, is appropriate.

Response:

Decontamination will be performed consistent with FMPC Standard Operating Procedures for similar operations. In addition, specific RI/FS decontamination Procedures for the Facilities Testing Program will be followed when appropriate.

73. Comment:

Section 11.0, page 11-13: A map delineating the route to the nearest medical facility or medical assistance station should be shown in the section regarding emergency procedures. Emergency equipment locations should also be specified on a site work map.

Response:

Will Modify. A map delineating the route to the FMPC Medical Facility will be provided.

74. Comment:

Section 12, page 13: The section regarding confined spaces should address the additional considerations for ambient monitoring and more protective respiratory safety requirements. The specific tasks to be performed in confined spaces should be outlined. Since the tasks involve disruption of process lines and containerized materials, there is a chance for greater potential hazards.

Response:

Will modify. The specific tasks to be performed in confined spaces will be outlined in the Health and Safety Plan. The FMPC procedures ESH-P-41-0046 and FMPC-516 will be followed.

75. Comment:

Attachments: A summarization of the health risks, potential exposure pathways, and practical first aid for each potential hazardous substance is more effective than full reproduction of the Material Safety Data Sheets (MSDS).

Response:

The MSDS will not be reproduced to be include as attachments. A summary on key health risks, exposure rates, and first aid will be developed for known substances and included in the work plan.

76. Comment:

Attachments: Because of health risks posed by the potential presence of HF in the soils, groundwater, and plant process and building structures, the chemical specific hazards should be included in section 7. A reference to standard operating procedures (SOPs) for radiation and HF exposures are referenced in Section II, but should also be included in the plan for this removal action.

Response:

No modification required. Because the Plant 9 Zirnlo operation where HF was used has been rebuilt and new lines were put in and the old ones were purged, there is unlikely to be any HF acid present. Furthermore SOP's are not to be included in the task specific Health and Safety Plans per 29 CFR 1910.(b)(1)F.