

4919

**SUPPLEMENT TO PROJECT SPECIFIC PLAN
FEMP TRAP RANGE INVESTIGATION FINAL U.S.
EPA AND OHIO EPA COMMENT RESOLUTION
NOVEMBER 1993**

11/18/93

**DOE-FN/EPA
27
RESPONSES
OU5**

-4919

SUPPLEMENT TO

PROJECT SPECIFIC PLAN

FEMP TRAP RANGE INVESTIGATION

FINAL U.S. EPA AND OHIO EPA COMMENT RESOLUTION

November 1993

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

U.S. DEPARTMENT OF ENERGY
FERNALD FIELD OFFICE

0003

INTRODUCTION

This Supplement to the Project Specific Plan for the FEMP Trap Range Investigation documents the resolution of issues and comments offered by U.S. EPA and Ohio EPA and incorporates amendments to the subject Plan, dated June 1993. All issues cited in the following document have been resolved:

- Letter, J. R. Craig to J. A. Saric and G. E. Mitchell, "Transmittal of Responses to U.S. EPA and Ohio EPA Comments on the Project Specific Plan for FEMP Trap Range," dated September 21, 1993

The Supplement presents each comment followed by the final resolution of the comment as agreed to by U.S. EPA, Ohio EPA and DOE. Appendix A contains the above-cited correspondence.

Resolution: Revision of the Project Specific Plan is not required. Use of a metal detector was selected to expedite the determination of the presence of lead shot and to identify subsequent sampling locations; it was not intended to delineate lead contamination of the soil. The metal detector required very little training and demonstrated an appropriate sensitivity to lead pellets, based on initial estimates of the lead shot load expected in surface soils. The use of XRF field screening for delineating the extent of contamination will be considered if a remedial action is required.

Commenting Organization: U.S. EPA
Section #: 3.1
Original Comment # 5

Pg. #: 13

Commentor:
Line #:

Code:

Comment: The text states that if the metal detector registers readings on its scale in all areas, then a background value will be established by collecting readings at a discrete number of clean locations. The text further states that 30 readings will be taken in clean areas located east, south, and west of the trap range. First, if the metal detector registers readings in all areas, it is unclear what criteria will be used to determine clean areas for establishing background. Second, areas located east and south of the trap range may be contaminated with stray shot. Background locations should be established west and northwest of the trap range.

Resolution: Revision of the Project Specific Plan is not required. Clean areas for establishing background would be well outside the area expected to be impacted by the Trap Range activities. There is ample area well outside the danger zone, depicted in Figure 3-1, in which to establish background. This includes grounds along Willey Road to the south, along the South Access Road, and along the east side of the FEMP. It is possible that some stray shot could have fallen in the area outside the danger zone; therefore, 10 readings were planned in each of the three areas to determine an acceptable background area.

Commenting Organization: U.S. EPA
Section #: 3.2
Original Comment # 6

Pg. #: 13

Commentor:
Line #:

Code:

Comment: This section refers to Section 2.8, which does not exist. The text should be revised to indicate the correct section number.

Resolution: The correct reference is to Section 2.7.

Commenting Organization: U.S. EPA
Section #: 3.3.2
Original Comment # 7

Pg. #: 15

Commentor:
Line #:

Code:

Comment: The text states that surface water samples will be collected from standing water near the most heavily contaminated areas. The final report for this project specific plan (PSP) should include a map designating the surface water sampling locations, as the locations of the most heavily contaminated areas and the standing water are not yet known.

Commenting Organization: Ohio EPA
Section #: 2.2
Original Comment # 1

Pg. #: 3

Commentor:
Line #:

Code: C

Comment: There are several concerns with the estimated volume of lead expended. A normal trap shoot consists of four stations with 25 shots at each station resulting in 100 shotgun shells expended. The reference to No. 7 shot is wrong. Lead shot is not manufactured as No. 7 but as 7 1/2 size. The weight of the shot is listed in different amounts. A typical trap load weight is 1 1/8 oz. (1.125) of lead shot. DOE's estimated volume of lead expended is on the conservative side. There is no allowance for practice rounds and various other occurrences. The output of lead should be approximately 85,000 pounds. This figure is probably the lower range limit.

Resolution: Revision of the Project Specific Plan is not required. The operational history presented in the PSP is based on oral reports by members of the employees' trap shooting club. Since this was a small private club, there is no assurance that their practices were consistent with what may be considered acceptable today. There is one typographical error to be corrected. The shotgun shells did contain 1.125 not 1.25 ounces of shot. The correct value of 1.125 ounces was used in the calculation.

The oral history recounts that No. 7 shot was used. DOE has not researched the current manufacturing practices in the shotgun shell industry; however, No. 7 shot is listed in the "Shotgun Handbook," 3rd Edition, Appendix 9 as 0.10 inch in diameter and approximately 299 pellets per ounce. In any case, the weight of shot in the shell is 1.125 oz., so the specified shot size has no impact on the calculation of potential contamination. The sieve analysis is based on an assumption that shot as small as No. 9, which is 0.08 inches in diameter, could have been used.

Given the large number of assumptions regarding the frequency of use, number of shooters per day, and number of months of operation per year, there is no assurance of complete accuracy in calculating total lead discharge. The main point is that DOE recognizes that there is a potentially significant amount of shot in the Trap Range area and that an investigation is warranted to determine the nature and extent of the contamination.

Commenting Organization: Ohio EPA
Section #: 2.3
Original Comment # 2

Pg. #: 5

Commentor:
Line #: 8

Code: C

Comment: Will further analysis be conducted (such as TCLP) if high concentrations of contaminants are found in the HSL sample results?

Resolution: Revision of the Project Specific Plan is not required. Further analysis is a decision to be made after the data are evaluated and a determination is made as to the next course of action. If soil excavation for off-site disposal is considered as a remedial option, TCLP analyses will be conducted as needed to fulfill RCRA classification.

Commenting Organization: Ohio EPA
Section #: 2.6
Original Comment # 3

Commentor:
Line #: last paragraph
Code: C

Comment: Why were construction vehicles allowed to drive through this area? If the equipment has caused material from the trap range to be carried to other areas the extent of spreading by the tires will have to be determined. This is especially true in the area 100 feet south of the trap house where heavy concentrations of trap wastes are expected.

Resolution: Revision of the Project Specific Plan is not required. There is no explanation at hand for this unfortunate occurrence. The radiation walkover survey is to cover a large enough area to determine whether contamination was spread from the area between the metal shed and the trap house by heavy equipment. It must be emphasized that the traffic activity heavy enough to churn up the soil only occurred between the buildings. In the area south of the trap house, the level of traffic only matted the grass.

Commenting Organization: Ohio EPA
Section #: 2.7
Original Comment

Commentor:
Line #: 3d paragraph
Code: C

Comment: The statement is correct. There may have been radiological surface contamination in the area of the shooting platform but it may be impossible to tell since construction vehicles were allowed to drive through the area and successfully dilute what may have been there. This will need to be verified.

Resolution: Revision of the Project Specific Plan is not required. A radiation walkover survey, which will detect uranium at activity levels down to 35 pCi/g, will be used to investigate potential radiological contamination. Even if no surface radiation is detected, soil samples will be collected in the area closest to the buildings, where the impact of the vehicle traffic is minimal. The only other mode of contaminant dispersion in the area of the metal shed is foot traffic. There is no direct evidence that contamination existed near the buildings before vehicles drove over the area.

Commenting Organization: Ohio EPA
Section #: 3.1
Original Comment # 5

Commentor:
Line #: 2nd paragraph
Code: C

Comment: The metal detector's ability to define the entire area of concern for lead-shot is questionable. The fringe areas where the shot will be sparse but still a problem may not be identified by the metal detector survey.

Resolution: Revision of the Project Specific Plan is not required. DOE had acknowledged a risk that the metal detector would not be able to delineate the extent of each area where widely scattered pellets have fallen. In fact, the metal detector was unable to identify lead shot in soils at all; therefore, a stratified random selection process was used to choose soil sample locations for sieve analysis. If sufficient contamination is discovered to require remedial measures, an appropriate level of field screening and sampling will be undertaken during remedial design to ensure that all the material is removed.

Commenting Organization: Ohio EPA
Section #: 3.1
Original Comment # 6

Pg. #: 11

Commentor:
Line #: 2nd paragraph

Code: C

Comment: How low is low?

Resolution: Revision of the Project Specific Plan is not required. A screening test of the Fisher 95 metal detector was performed. Sensitivity to detect lead shot was estimated to be about 0.3 ounces per square foot.

Commenting Organization: Ohio EPA
Section #: 3.3.1
Original Comment # 7

Pg. #: 14

Commentor:
Line #:

Code: C

Comment: Will the 3 soil samples collected from areas where lead-shot was not found be from within the trap range boundaries and what will be the way of not finding any lead-shot?

Resolution: Revision of the Project Specific Plan is not required. As stated, the three samples were collected from those areas in which shot was not found in the sieve analysis. The fact that shot is not found in a 200 mesh sieve will be the basis for saying no shot is present at those locations within the Trap Range boundaries.

Commenting Organization: Ohio EPA
Section #: 3.3.1
Original Comment # 8

Pg. #: 14

Commentor:
Line #: last

Code: C

Comment: The samples used for HSL SVOC will be the samples with the highest percentage of trap fragments in them. The problem is the samples may not be representative of the area with the highest percentage of trap fragments in them. It was stated earlier that it would be expected that the trap fragments would fall closer to the trap house than the lead-shot. The SVOC samples however are being collected where the lead-shot concentration is the highest and the trap fragments the lowest.

Resolution: It is assumed that if lead shot does not hit anything during its flight, it will travel farther than the clay targets and thus will be dispersed over a wider area. The assumption is that since the lead shot will lose energy when it hits the trap targets and the trap fragments will continue to travel forward after being hit by the shot, the highest concentration of both shot and fragments will be in roughly the same area. Therefore, a focus on lead would be effective for selection of clay target particles.

In practice, the metal detector survey did not provide sufficiently definitive data to allow the sampling program to be carried out as specified in the PSP. Subsequently, sample locations were chosen using a stratified, random method so that 60 percent of the samples for sieve analysis were collected within the 75- to 375-foot zone in front of the Trap House, and 40 percent of the samples were collected in the remainder of the danger zone depicted in Figure 3-1. The majority of the trap fragments should be within the 75- to 375-foot zone.

Commenting Organization: Ohio EPA
Section #: 3.3.1
Original Comment # 9

Pg. #: 15

Commentor:
Line #: 3d paragraph

Code:

Comment: Since DOE has not stopped the area around the shed and trap from being torn up by construction activities, will valid hot spots be found?

Resolution: Revision of the Project Specific Plan is not required. If hot spots currently exist, they should be detected by the radiation walkover survey.

APPENDIX A



Department of Energy
Fernald Environmental Management Project
P. O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 738-6357

SEP 21 1993

DOE-3037-93

Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - 5HRE-8J
77 W. Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Graham E. Mitchell, Project Manager
Ohio Environmental Protection Agency
40 South Main Street
Dayton, Ohio 45402-2086

Dear Mr. Saric and Mr. Mitchell:

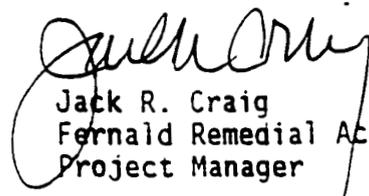
**TRANSMITTAL OF RESPONSES TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AND THE OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE PROJECT SPECIFIC
PLAN FOR THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT TRAP RANGE
INVESTIGATION, JUNE 1993**

- References:
- 1) Letter, J. A. Saric to J. R. Craig, "Disapproval of OU5 Trap Range Work Plan Addendum," dated August 5, 1993
 - 2) Letter, G. E. Mitchell to J. R. Craig, "Comments on the Operable Unit 5 PSP," dated July 29, 1993

Enclosed for your review are the subject responses. The work plan will be revised upon final resolution of these comments.

If you or your staff have any questions, please contact Kathi Nickel at (513) 648-3166 or Pete Yerace at (513) 648-3161.

Sincerely,



Jack R. Craig
Fernald Remedial Action
Project Manager

FN:Nickel

Enclosure: As Stated

0011

cc w/ enc:

K. H. Chaney, EM-424. TREV
D. R. Kozlowski. EM-424 TREV
G. Jablonowski. USEPA-V, AT-18J
J. Kwasniewski. OEPA-Columbus
P. Harris. OEPA-Dayton
M. Proffitt, OEPA-Dayton
T. Schneider, OEPA-Dayton
J. Michaels, PRC
L. August, GeoTrans
K. L. Alkema, FERMCO/65-2
P. F. Clay, FERMCO/19
F. Bell, ATSDR
AR Coordinator, FERMCO

cc w/o enc:

R. L. Glenn, Parsons
J. W. Thiesing, FERMCO

Commenting Organization: U.S. EPA
Section #: 3.1
Original Comment # 4

Pg. #: 11

Commentor:
Line #:

Code:

Comment: The text indicates that a metal detector will be used to delineate areas of lead-shot contamination. X-ray fluorescence (XRF) should be considered for use instead of a metal detector because XRF can directly read the lead levels in the soil.

Response: Use of a metal detector was selected to expedite the determination of extent of lead shot presence to identify subsequent sampling locations. It was not intended to delineate lead contamination of the soil. The metal detector required very little training and demonstrated an appropriate sensitivity to lead pellets, based on initial estimates of the lead shot load expected in surface soils. The prospect of using XRF field screening for delineating the extent of contamination will be considered if a remedial action is required.

Action: No change to the PSP is required.

Commenting Organization: U.S. EPA
Section #: 3.1
Original Comment # 5

Pg. #: 13

Commentor:
Line #:

Code:

Comment: The text states that if the metal detector registers readings on its scale in all areas, then a background value will be established by collecting readings at a discrete number of clean locations. The text further states that 30 readings will be taken in clean areas located east, south, and west of the trap range. First, if the metal detector registers readings in all areas, it is unclear what criteria will be used to determine clean areas for establishing background. Second, areas located east and south of the trap range may be contaminated with stray shot. Background locations should be established west and northwest of the trap range.

Response: Clean areas for establishing background would be areas well outside the area expected to be impacted by the Trap Range activities. There is ample area well outside the danger zone, depicted in Figure 3-1, in which to establish background. This includes grounds along Willey Road to the south, along the South Access Road, and along the east side of the FEMP. It is possible that some stray shot could have fallen in the area outside the danger zone; therefore, ten readings were planned in each of the three areas to determine an acceptable background area.

Action: No change to the PSP is required.

Commenting Organization: U.S. EPA
Section #: 3.2
Original Comment # 6

Pg. #: 13

Commentor:
Line #:

Code:

Comment: This section refers to Section 2.8, which does not exist. The text should be revised to indicate the correct section number.

Response: The text will be corrected.

Commenting Organization: U.S. EPA
Section #: 6.1
Original Comment # 10

Pg. #: 21

Commentor:
Line #:

Code:

Comment: The text states that duplicate samples will be collected as adjacent samples at surface locations. Duplicate samples should be aliquots of the same sample, not samples collected from the same depth in adjacent borings. This issue should be addressed.

Response: The purpose of the sample is to measure the shower of shot over the land surface. The purpose of the duplicate sample is to verify that the sample collected represents field conditions and is not biased by the sampling technique. A sieve analysis is performed to determine the quantity of shot within a four-inch diameter circle. An adjacent sample is used to verify the collection technique on the assumption that shot is scattered over the location at an even density.

Action: No change to the PSP is required.

**RESPONSES TO OHIO EPA REVIEW COMMENTS ON THE PROJECT
SPECIFIC PLAN FOR FEMP TRAP RANGE INVESTIGATION**

Commenting Organization: Ohio EPA
Section #: 2.2
Original Comment # 1

Pg. #: 3

Commentor:
Line #:

Code: C

Comment: There are several concerns with the estimated volume of lead expended. A normal trap shoot consists of four stations with 25 shots at each station resulting in 100 shotgun shells expended. The reference to No. 7 shot is wrong. Lead shot is not manufactured as No. 7 but as 7 ½ size. The weight of the shot is listed in different amounts. A typical trap load weight is 1 ⅞ oz. (1.125) of lead shot. DOE's estimated volume of lead expended is on the conservative side. There is no allowance for practice rounds and various other occurrences. The output of lead should be approximately 85,000 pounds. This figure is probably the lower range limit.

Response: The operational history presented in the PSP is based on oral reports by members of the employee's trap shooting club. Since this was a small private club, there is no assurance that their practices were consistent with what may be considered acceptable today. There is one typographical error, which will be corrected. The shotgun shells did contain 1.125 not 1.25 ounces of shot. The correct value of 1.125 ounces was used in the calculation.

The oral history recounts that No. 7 shot was used. DOE has not researched the current manufacturing practices in the shotgun shell industry; however, No. 7 shot is listed in the "Shotgun Handbook," 3rd Edition, Appendix 9 as 0.10 inch in diameter and approximately 299 pellets per ounce. Again, this is an oral history of a small club which may or may not have practiced standards in existence today. In any case, the weight of shot in the shell is 1.125 oz., so the specified shot size has no impact on the calculation of potential contamination. The sieve analysis is based on an assumption that shot as small as No. 9, which is 0.08 inches in diameter, could have been used.

Given the large number of assumptions regarding the frequency of use, number of shooters per day, and number of months of operation per year, there is no assurance of complete accuracy in calculating total lead discharge. The main point is that DOE recognizes that there is a potentially significant amount of shot in the Trap Range area, and that an investigation is warranted to determine the nature and extent of the contamination.

Action: Correct 1.25 to 1.125 in the text.

Commenting Organization: Ohio EPA
Section #: 2.3
Original Comment # 2

Pg. #: 5
Line #: 8

Commentor:
Code: C

Comment: Will further analysis be conducted (such as TCLP) if high concentrations of contaminants are found in the HSL sample results?

Response: That is a decision to be made after the data are evaluated and a determination is made as to the next course of action. If soil excavation for off-site disposal is considered as a remedial option, TCLP analyses will be conducted as needed to fulfill RCRA classification.

Action: No change to the PSP is required.

Commenting Organization: Ohio EPA
Section #: 2.6
Original Comment # 3

Pg. #: 7
Line #: last paragraph

Commentor:
Code: C

Comment: Why were construction vehicles allowed to drive through this area? If the equipment has caused material from the trap range to be carried to other areas the extent of spreading by the tires will have to be determined. This is especially true in the area 100 feet south of the trap house where heavy concentrations of trap wastes are expected.

Response: There is no explanation at hand for this unfortunate occurrence. The radiation walkover survey is to cover a large enough area to determine whether contamination was displaced from the area between the metal shed and the trap house by heavy equipment. It must be emphasized that the traffic activity heavy enough to churn up the soil only occurred between the buildings. In the area south of the trap house, the level of traffic only matted the grass.

Action: No change to the PSP is required.

Commenting Organization: Ohio EPA
Section #: 2.7
Original Comment

Pg. #: 8
Line #: 3d paragraph

Commentor:
Code: C

Comment: The statement is correct. There may have been radiological surface contamination in the area of the shooting platform but it may be impossible to tell since construction vehicles were allowed to drive through the area and successfully dilute what may have been there. This will need to be verified.

Response: A radiation walkover survey, which will detect uranium at activity levels down to 35 pCi/g, will be used to investigate potential radiological contamination. Even if no surface radiation is detected, soil samples will be collected in the area closest to the buildings, where the impact of the vehicle traffic is minimal. The only other mode of contaminant dispersion in the area of the metal shed is foot traffic. There is no direct evidence that contamination existed near the buildings prior to the vehicles driving over the area.

Action: No change to the PSP is required.

Commenting Organization: Ohio EPA
Section #: 3.1
Original Comment # 5

Pg. #: 9

Commentor:
Line #: 2nd paragraph

Code: C

Comment: The metal detector's ability to define the entire area of concern for lead-shot is questionable. The fringe areas where the shot will be sparse but still a problem and may not be identified by the metal detector survey.

Response: DOE agrees that there is some risk of not delineating the extent of each area where widely scattered pellets have fallen. The field activities were planned to fulfill the needs of the RI/FS. If sufficient contamination is discovered to require remedial measures, an appropriate level of field screening and sampling will be undertaken, during remedial design, to assure that all the material is removed.

Action: No change to the PSP is required.

Commenting Organization: Ohio EPA
Section #: 3.1
Original Comment # 6

Pg. #: 11

Commentor:
Line #: 2nd paragraph

Code: C

Comment: How low is low?

Response: A screening test of the Fisher 95 metal detector was performed. Sensitivity to detect lead shot was estimated to be about 0.3 ounces per square foot.

Action: No change to the PSP is required.

Commenting Organization: Ohio EPA
Section #: 3.3.1
Original Comment # 7

Pg. #: 14

Commentor:
Line #:

Code: C

Comment: Will the 3 soil samples collected from areas where lead-shot was not found be from within the trap range boundaries and what will be the way of not finding any lead-shot?

Response: As stated, the three samples will be collected from those areas in which shot was not found in the sieve analysis. The fact that shot is not found in a 200 mesh sieve will be the basis for saying no shot is present within the Trap Range boundaries.

Action: No change to the PSP is required.

Commenting Organization: Ohio EPA
Section #: 3.3.1
Original Comment # 8

Pg. #: 14

Commentor:
Line #: last

Code: C

Comment: The samples used for HSL SVOC will be the samples with the highest percentage of trap fragments in them. The problem is the samples may not be representative of the area with the highest percentage of trap fragments in them. It was stated earlier that it would

be expected that the trap fragments would fall closer to the trap house than the lead-shot. The SVOC samples however are being collected where the lead-shot concentration is the highest and the trap fragments the lowest.

Response: If lead-shot does not hit anything during its flight, it will travel farther than the clay targets and thus, will be dispersed over a wider area. The assumption is that since the lead shot will lose energy when it hits trap targets and the trap fragments will continue to travel forward after hit by shot, that the highest concentration of both shot and fragments will be in roughly the same area.

In practice, the metal detector survey did not provide sufficiently definitive data to allow the sampling program to be carried out as specified in the PSP. Sample locations were chosen using a stratified, random method so that 60 percent of the samples for sieve analysis were collected within the 75- to 375-foot zone in front of the Trap House, and 40 percent of the samples were collected in the remainder of the danger zone depicted in Figure 3-1. The majority of the trap fragments should be within the 75- to 375-foot zone.

Action: Revise the PSP text to show the procedure used to select soil samples for sieve analysis using the stratified random method.

Commenting Organization: Ohio EPA
Section #: 3.3.1
Original Comment # 9

Pg. #: 15

Commentor:
Line #: 3d paragraph

Code:

Comment: Since DOE has not stopped the area around the shed and trap from being torn up by construction activities, will valid hot spots be found?

Response: If hot spots currently exist, they should be detected by the radiation walkover survey.

Action: No change to the PSP is required.