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1-208.8

COMMENTS: OU1 90% DESIGN PACKAGES I & II

05/01/96

OEPA            DOE-FN  
13  
COMMENTS

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State of Ohio Environmental Protection Agency

Southwest District Office

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273

FERNALD  
J-1854  
MAY 3 9 43 AM '96

George V. Voinovich  
Governor

May 1, 1996

FILE  
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RE: DOE FEMP  
MSL 531-0297  
HAMILTON COUNTY  
COMMENTS: OUI 90%  
DESIGN PACKAGES I & II

Mr. Johnny Reising  
U.S. Department of Energy, Fernald Area Office  
P.O. Box 538705  
Cincinnati, OH 45253-8705

Dear Mr. Reising:

Please find as an attachment to this letter, Ohio Environmental Protection Agency comments on the Operable Unit 1 Pre-Final Design Packages I and II. Also included within this attachment are comments submitted by the Ohio Department of Health, Bureau of Radiological Protection. This material was received by Ohio EPA on March 21, 1996.

If you have any questions, please contact Tim Hull, at (513) 285-6075 or me.

Sincerely,

Thomas A. Schneider  
Fernald Project Manager  
Office of Federal Facilities Oversight

- cc: Jim Saric, U.S. EPA
- Terry Hagen, FERMCO
- Ruth Vandergrift, ODH
- Mike Proffitt, DD&GW
- Sharon McLellan, PRC
- Manager, TPSS/DERR,CO
- Dave Ward, GeoTrans

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(9580)

## Ohio EPA Comments on the OU1 Pre-Final Design Package I&II

### Package I

- 1.) Commenting Organization: Ohio EPA                      Commentor: GeoTrans, Inc.  
Section #: General Pg. #: Line #:      Code: G  
Original Comment #  
Comment:      Please prepare a detailed table of contents for this document. This should include a list of tables, figures, and drawings.  
Response:  
Action:
- 2.) Commenting Organization: Ohio EPA                      Commentor: GeoTrans, Inc.  
Section #: Plant Facilities Design Criteria Document Pg. #: 2-4 Line #: 30 & 31 Code: G  
Original Comment #  
Comment:      This section is inconsistent with Section 6, Dried Waste Loadout and Blending. Section 1 of the Plant Facilities Engineering calls for blending of dried and wet waste using a twin auger mixer. (Page 1-4, lines 12 through 15)  
Response:  
Action:
- 3.) Commenting Organization: Ohio EPA                      Commentor: GeoTrans, Inc.  
Section #: Plant Facilities Design Criteria Document Pg. #: 2-11 Line #: 30 & 31 Code: G  
Original Comment #  
Comment:      How will incompatibility of wastes with the clay liner and underlying clay materials be determined?  
Response:  
Action:
- 4.) Commenting Organization: Ohio EPA                      Commentor: GeoTrans, Inc.  
Section #: Plant Facilities Design Criteria Document Pg. #: 2-11 Line #: 32 to 35 Code: G  
Original Comment #  
Comment:      How will RCRA characteristic wastes be identified if they are present?  
Response:  
Action:
- 5.) Commenting Organization: Ohio EPA                      Commentor: GeoTrans, Inc.  
Section #: Plant Facilities Engineering - Process Descriptions      Pg. #: Line #:  
Original Comment #  
Comment:      There should be a process and instrumentation diagram (P&ID) included with this design package. This should supplement the control philosophy descriptions which reference the process flow diagrams. A P&ID would make this section much easier to follow.  
Response:  
Action:

6.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.  
Section #: Plant Facilities Engineering - Process Descriptions Pg. #:3-2 Line #: 2 to 4 Code: G  
Original Comment #  
Comment: How will this diversion of soils containing non-ferrous metals occur? Will some effort be made to verify the non-ferrous metals have been removed from the soils? Please provide additional explanation of this system.

Response:  
Action:

7.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.  
Section #: Plant Facilities Engineering - Control Philosophy Pg. #:2-5 Line #: 28 to 29  
Original Comment #  
Comment: Please explain how the slurry feed and soils feed rate to the dryer will be measured.

Response:  
Action:

8.) Commenting Organization: Ohio EPA Commentor: DSW  
Section #: 2.3.5.3 Design Criteria Pg #: 2-45,46 Line #: Code: C  
Original Comment #:  
Comment: Page 2-45, line 26 and 2-47, line 14. "Rainwater and Land Development" referred to in the former but not the latter. This should be included on page 2-47, line 14.

Response:  
Action:

9.) Commenting Organization: Ohio EPA Commentor: DSW  
Section #: 3.0 References Pg #: Line #: Code: C  
Original Comment #:  
Comment: Add ODOT and Rainwater and Land Development.

Response:  
Action:

10.) Commenting Organization: Ohio EPA Commentor: DSW  
Section #: Substantive Permit Crosswalk Pg #: B-23 Line #: Code: E  
Original Comment #:  
Comment: Table B-4, typo 1-1.5 acre "ratio", not "ration"

Response:  
Action:

11.) Commenting Organization: Ohio EPA Commentor: DSW  
Section #: Civil Specs. Submittal Listing Table, section01011 of Spec. Submittal Listing Division2, page 1 of 3, section 02270, erosion control Pg #: Line #: Code: C  
Original Comment #:  
Comment: Section reads "Maintenance/Instruction", does not appear to be correct, perhaps "Instruction" should read "Construction".

Response:  
Action:

12.) Commenting Organization: Ohio EPA            Commentor: DSW  
Section #: 02200, 1.4            Pg #: 2 of 11 Line# 6 Code: C

Original Comment #:

Comment: References should include "Rainwater and Land Development", 2nd edition, 1996. Page 7 of 11, line 10 should read per "Rainwater and Land Development" and ODOT(see page 2-44, line 40).

Response:  
Action:

13.) Commenting Organization: Ohio EPA            Commentor: DSW  
Section #: 02270, 1.4            Pg #: 1 of 4 Line #: 32 Code: C

Original Comment #:

Comment: Add "Rainwater and Land Development". Page 3 of 4, 2.1, line 3 should refer to the reference of "Rainwater and Land Development" and ODOT. Page 3 of 4, line 32: Use of hay bales not recommended. Note that hay bales have already been installed on some check dams per the drawings. These existing check dams should be monitored closely by FERMC0 for efficacy.

Response:  
Action:

14.) Commenting Organization: Ohio EPA            Commentor: DSW  
Section #: 02900    Pg #: 1 of 7 Line #:            Code: C

Original Comment #:

Comment: Please reference "Rainwater and Land Development". Page 5 of 7, Section 3.2, line 23 refers to article 2.1, paragraph b, subparagraph 1.b., should read 2.1, paragraph c, subparagraph 1.b

Response:

Action:

## GENERAL

15.) Commenting Organization: Ohio EPA            Commentor: OFFO  
Section #: General    Pg #: n/a    Line #: n/a    Code: C

Original Comment #:

Comment: Continuous monitoring of stack emissions are required per NESHAPS (40 CFR 61, Subpart H). These emissions and reporting requirements are applicable.

Response:  
Action:

16.) Commenting Organization: Ohio EPA            Commentor: OFFO  
Section #: General    Pg #: n/a    Line #: n/a    Code: C

Original Comment #:

Comment: The OU1 remediation will include the interim storage of radium bearing wastes, as well as, removing the covers from radium bearing wastes in the pits. It will probably be impracticable to

demonstrate that radon emissions are less than the 20 pCi/m<sup>2</sup>/sec limit (DOE 5400.5, 40 CFR 61 Subpart Q). What methods will be employed determine radon flux from the waste pits after the covers have been removed? Portions of the waste pits emit radon in excess of the limit with the earthen cover in place.

Response:

Action:

17.) Commenting Organization: Ohio EPA                      Commentor: ODH

Section #: GENERAL                      Pg #:    Line #:                      Code: C

Original Comment #:

Comment: Will the analytical screenings of OU1 soil/debris which may enter the onsite disposal cell include Technetium-99? Due to it's environmental mobility, the potential addition should be included in the current value of the WAC of Tc for onsite disposal.

Response:

Action:

18.) Commenting Organization: Ohio EPA                      Commentor: ODH

Section #: GENERAL                      Pg #:    Line #:                      Code: C

Original Comment #:

Comment: The text states field measurements for radon at feed prep, blending, and loadout areas will be taken initially during operations to verify modeling results. Is there sufficient confidence in the waste characterization in the pits to limit the radon tests to this initial period?

Response:

Action:

19.) Commenting Organization: Ohio EPA                      Commentor: ODH

Section #: GENERAL                      Pg #:    Line #:                      Code: C

Original Comment #:

Comment: To enhance confidence in the waste analytical data and avoid shipment of non-acceptable wastes, will the FEMP's confirmatory analysis be coordinated with the independent third party analysis prior to shipment of waste offsite? The text references the Sampling and Analysis Plan for additional detail. Please define within the text when this plan will be submitted for review.

Response:

Action:

20.) Commenting Organization: Ohio EPA                      Commentor: DSW

Section #: GENERAL                      Pg #:    Line #:                      Code: C

Original Comment #:

Comment: The Ohio EPA needs more detail on stormwater management and erosion controls, e.g. surface water flow, direction, drainage areas, volumes, silt fence locations, etc. For example, the drawings indicate the flow of surface water from south pit #4 towards the depression with the "control box" west of the biodenitrofication lagoon. However, it is unclear where water east of pit #4 flows and the source and drainage area for the water that flows into the SWM pond.

Response:

Action:

21.) Commenting Organization: Ohio EPA                      Commentor: OFFO  
Section #: GENERAL                      Pg #:    Line #:                      Code: C  
Original Comment #:

Comment: DOE & FERMCO needs to ensure that a plan is in place prior to OU1 remedial actions that will prevent sediment loading to Paddys Run which could potentially effect the Sloans Crayfish habitat. This plan will ensure prevention of impacts to the Paddys Run habitat, vs. mitigating damages which may occur after OU1 remediation.

Response:  
Action:

22.) Commenting Organization: Ohio EPA                      Commentor: OFFO  
Section #: 2.2                      Pg #: 2-20    Line #: 4-5                      Code: C  
Original Comment #:

Comment: The maximum off-site impact of 0.5 pCi/L annual average for radon is stated as a determinant for a stack limit for radon emissions. Appendix D states a radon emission limit of 2 x 108 pCi/sec, apparently based on the 0.5 pCi/L impact. This limit, based on the design criteria, would indicate an excessive flux rate. Employing BAT and ALARA principals would include radon treatment in the off-gas system.

Environmental measurements of radon at the FEMP fenceline will not be able to demonstrate an annual average radon concentration of 0.5 pCi/L attributable to the dryer off-gas, especially with the presence of other high radon sources on the site. The dryer off-gas should limit the Rn-222 emissions to the atmosphere to 20 pCi/m<sup>2</sup>/sec.

Response:  
Action:

23.) Commenting Organization: Ohio EPA                      Commentor: OFFO  
Section #: Appendix D                      Pg #: D-1    Line #: n/a                      Code: C  
Original Comment #:

Comment: It is unclear how these limits were derived. Typically, the maximum capacity of the process input (tons/hr) and the worst case concentration of the contaminant of concern are used to estimate off-gas emission (uncontrolled release). The use of manufacturer removal efficiencies for each COC is then applied to demonstrate how BAT is used to minimize airborne emissions.

Please provide a table clearly illustrating how the "limits" in Appendix D were derived.

Response:  
Action:

24.) Commenting Organization: Ohio EPA                      Commentor: OFFO  
Section #: Table A-2 Pg #: A-9                      Line #: n/a                      Code: C  
Original Comment #:

Comment: Category: Radiation

TBC Requirements: DOE 5400.5 (DCGs). The DCGs do not comply with 40 CFR 61, Subpart H criterion of 10 mrem/yr CEDE. 40 CFR 61, Subpart H criterion are demonstrated through the use EPA approved models such as AIRDOS.

Compliance Strategy: The first paragraph of compliance strategy is not applicable. TLDs will not measure the EDE in the controlled area for ingested or inhaled radionuclides. Review of the referenced "Assessment of Radiological Hazards Associated with OU1 Remedial Design" indicates that doses to the public from OU1 activities will be approximately 1 mrem/yr. This requires continuous monitoring of this source. This continuous monitoring should include the dryer stack, for radionuclides of concern. The stack should be continuously sampled for isotopic thorium, isotopic uranium, isotopic radium, and Rn-222. Stack emission limits, as well as limits for the entire project should be developed, including methods for determining/estimating emissions from the complete project.

Response:

Action:

25.) Commenting Organization: Ohio EPA                      Commentor: OFFO

Section #: Table A-3 Pg #: A-11    Line #: n/a    Code: C, E

Original Comment #:

Comment:

Category: Radon Applicable Requirements: 40 CFR 61, Subpart Q

The maximum off-site impact is 3 pCi/L annual average, not 5 pCi/m<sup>2</sup>/sec.

Prior measurements of the radon flux emanating from the waste pits indicate that this material has radium in sufficient quantities to exceed the 20 pCi/m<sup>2</sup>/sec limit. According to this plan the earthen and/or man-made caps will be removed from the waste pits, allowing the radon to escape at higher rates. The wastes will also be stored on an interim basis prior to drying.

All sources of Radon-222 should be continuously monitored to demonstrate the assumptions made by modelers.

Note: 10 CFR 834 (Proposed Rule) places a maximum offsite limit of 0.5 pCi/L above background at the site boundary. This rule will probably be signed into law prior to the start-up of this project.

Planning should include provisions to demonstrate compliance with this rule.

Response:

Action:

26.) Commenting Organization: Ohio EPA                      Commentor: OFFO

Section #: Table A-3 Pg #: A-13    Line #: n/a    Code: C

Original Comment #:

Comment: Category: Air Discharges, OAC 3745-21-07 Organics should be monitored in the off-gas stream to demonstrate compliance with State code.

Response:

Action:

27.) Commenting Organization: Ohio EPA                      Commentor: OFFO

Section #: Table A-3 Pg #: A-13    Line #: n/a    Code: C

Original Comment #:

Comment: Category: Air Discharges, OAC 3745-31-05 (A)(3) Permit to Install. This report does not adequately address BAT determination. See comment number 23.

Response:

Action:

## **DRAWINGS**

28.) Commenting Organization: Ohio EPA            Commentor: DSW

Section #: 91X-5900-G-00214      Pg #:    Line #:            Code: C

Original Comment #:

Comment: Borrow area location and depth "to be determined", and Table B-4, page B-23 in the substantive permits crosswalk section states that depth should not go below 575 feet MSL. This maximum depth should be on the drawing. Also there is no provision for sediment trap/control on the drawing, proper sediment control must be included.

Response:

Action:

29.) Commenting Organization: Ohio EPA            Commentor: DSW

Section #: 91X-5900-G-00207      Pg #:    Line #:            Code: C

Original Comment #:

Comment: The use of straw bales in check dams is not recommended.

Response:

Action:

30.) Commenting Organization: Ohio EPA            Commentor: DSW

Section #: 91X-5900-G-0014      Pg #:    Line #:            Code: C

Original Comment #:

Comment: Silt fences are preferred over straw bales per "Rainwater and Land Development".

Response:

Action:

## **Package II**

31.) Commenting Organization: Ohio EPA            Commentor: GeoTrans, Inc.

Section #: General    Page #: NA            Line #: NA

Comment: The main body of the text is organized such that a significant portion of the quantitative data is located in the appendices. When referring to key decisions based on that data, please provide additional references when applicable (i.e., appendix number or page number on which the appropriate information can be found).

Response:

Action:

32.) Commenting Organization: Ohio EPA            Commentor: GeoTrans, Inc.

Section #: General    Page #: NA            Line #: NA

Comment: The text contains several indefinite references. For example: "Consideration should be given to.....". The wording indicates a lack of control or involvement in the decision process. Please clarify.

Response:

Action:

33.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: General Page #: NA Line #: NA

Comment: The excavation plan contains many assumptions, which at times are conflicting and confusing. Each time a design assumption is made on the basis of available data and a specific action is planned, a contingency is provided for by stating that if the planned action does not work, then other actions may become necessary and will be decided or designed later. It is recognized that the overall excavation plan is complicated and all contingencies cannot be addressed; however, the plan appears to rely on many actions that will be designed later, and does not provide adequate alternatives. The main concern with this approach is that significant delays may occur in implementing the remedial action when new alternatives need to be designed. Please comment.

Response:

Action:

34.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: General Page #: NA Line #: NA

Comment: The DEEP report suggests dewatering by well extraction would be an effective pre-excavation waste stabilization and minimization technique. However the text does not appear to incorporate a well dewatering strategy. Please clarify.

Response:

Action:

35.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 1-1 Page #: 1-1 Line #: 14-20

Comment: The top and bottom excavation method uses machinery placed on the soil cap. The soil cap does not strengthen the soil but effectively spreads out the load. How will the minimum cap thickness and extent be determined during excavation to maintain a stable working surface?

Response:

Action:

36.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 1-1 Page #: 1-1 Line #: 26-29

Comment: It is unclear how a combined mechanical and slurry removal strategy will be accomplished. It is anticipated that a combination of these techniques may be needed. If so, please describe how they will interact. In particular, please describe how the blending of wastes will be accomplished using the slurry removal technique.

Response:

Action:

37.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 1-2            Page #: 1-1            Line #: 25-38

Comment: The text states that the excavation to be conducted in Pits 1, 2, 4, and in the Burn Pit will be similar to that conducted in Pit 3. This statement appears to be contradictory because Pit 3 is a wet pit, which will most likely require hydraulic excavation. Pits 1, 2, 4, and the Burn Pit are dry pits where mechanical excavation is planned. This apparent contradiction was previously submitted as a comment, please indicate what portions of the text clarify this point.

Response:

Action:

38.) Commenting Organization: Ohio EPA            Commentor: OFFO

Section #: 2.2            Pg #: 2-2            Line #: 17-20 Code: C

Original Comment #:

Comment: It is unclear whether additional study will be used to determine the validity of airborne emissions or additional study will be used to verify the control measures. Briefly state what methods will be used to control these emissions, and whether or not monitoring will be used to verify the control measures.

Response:

Action:

39.) Commenting Organization: Ohio EPA            Commentor: GeoTrans, Inc

Section #: 2-2            Page #: 2-2            Line #: 9-15

Comment: The text states "it is assumed that the waste throughout the pit (and for other pits with overlying soil caps) has sufficient strength to maintain a workable and stable slope and that pit caps can support excavation equipment. Is test data available to confirm these assumptions? Please clarify.

Response:

Action:

40.) Commenting Organization: Ohio EPA            Commentor: GeoTrans, Inc.

Section #: 3            Page #: 3-1            Line #: 1-8

Comment: The proposed excavation sequences are listed. Were alternate sequences considered? What advantages does the current sequence have over other sequences? Please explain.

Response:

Action:

41.) Commenting Organization: Ohio EPA            Commentor: GeoTrans, Inc.

Section #: 3            Page #: 3-1            Line #: 23-27

Comment: The sequence's of pit excavations proceeds in several pits simultaneously. Material in Pit 2 is scheduled to be mixed with Pit 1 and 3 materials. How will delays in select pits effect the overall operation? Will delays in one pit cause excavations to be delayed or stopped in other pits? If stockpiling occurs what volume can be stockpiled before excavation is stopped or delayed?

Response:

Action:

42.) Commenting Organization: Ohio EPA Commentor: OFFO

Section #: 3 Pg #: 3-3 Line #: 29-30 Code: C

Original Comment #:

Comment: It is stated that, "The exterior stockpile will normally be used for stockpiling wetter wastes that will drain over time". How long will the wetter wastes be stockpiled? Where does the drainage go?

Response:

Action:

43.) Commenting Organization: Ohio EPA Commentor: OFFO

Section #: 4.1 Pg #: 4-3 Line #: 1-18 Code: E

Original Comment #:

Comment: The column indicating "Initial Moisture Content" should be identified as an average by footnoting the title of the column. A range of values for the moisture content would also be helpful in demonstrating that the moisture content of each waste pit is highly variable.

Response:

Action:

44.) Commenting Organization: Ohio EPA Commentor: OFFO

Section #: 4.1.3 Pg #: 4-5 Line #: 31 Code: E

Original Comment #:

Comment: There appears to be missing text at the end of this paragraph. Please verify and correct.

Response:

Action:

45.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 5.2 Page #: 5-2 Line #: 13-15

Comment: The explanation regarding the creation and use of sumps is vague. Please clarify in this section or reference the appropriate section.

Response:

Action:

46.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 5.2 Page #: 5-2 Line #: 24-27

Comment: What approximate volumes of water are expected to be added to the waste (in the form of water sprays) as a precaution for the release of airborne radioactive contaminants?

Response:

Action:

47.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 5.2.2 Page #: 5-4 Line #: 6-14

Comment: What slope will be required to maintain the open trench? Please further explain the trenching or reference the appropriate section.

Response:

Action:

48.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 5.2.3 Page #: 5-5 Line #: 24-27

Comment: It was suggested that approximately 3 feet of soil below the pit waste liners be excavated. Please reference the data used to make this assumption.

Response:

Action:

49.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 5.4 Page #: 5-6 Line #: 11-15

Comment: It is unclear whether equipment excavating the soil cap has supplied air, enclosed cabs, and filter cakes. Please clarify.

Response:

Action:

50.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 5.4.5 Page #: 5-7 Line #: 24-25

Comment: The explanation on the use of a slurry for hydraulic excavation is vague. Please add additional text or reference the appropriate section.

Response:

Action:

51.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 5.4.3 Page #: 5-7 Line #: 7-12

Comment: What contingencies are built into the excavation schedule? What is the minimum and average expected excavation rates?

Response:

Action:

52.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: 5.6.2 Page #: 5-10 Line #: 1-3

Comment: Please clarify who and what criteria will be used to make the decision.

Response:

Action:

53.) Commenting Organization: Ohio EPA Commentor: OFFO

Section #: 5.6.3 Pg #: 5-10 Line #: 11-36 Code: C

Original Comment #:

Comment: This section does not address Rn-222 or Rn-220 emissions during the excavation of pit wastes. Radon concentrations will increase during relatively calm days or days during atmospheric inversions. How will radon emissions be controlled?

Response:

Action:

54.) Commenting Organization: Ohio EPA Commentor: OFFO

Section #: 6.1 Pg #: 6-1 Line #: n/a Code: C

Original Comment #:

Comment: The Air Monitoring Program should be separated into two sections; one for occupational air monitoring, and one for environmental air monitoring. The 90% Design should include the project specific air monitoring program. Air monitoring activities should begin six months prior to excavation activities to determine the project specific "background" levels/concentrations.

Response:

Action:

55.) Commenting Organization: Ohio EPA Commentor: OFFO

Section #: 6.1 Pg #: 6-1 Line #: 26-38 Code: C

Original Comment #:

Comment: The Assessment of Radiological Hazards Associated with the OU1 Remedial Design indicates that dose rates will be approximately 1mrem/yr. This design should therefore include the plans for a supplemental environmental ambient air monitoring program including radon.

Response:

Action:

56.) Commenting Organization: Ohio EPA Commentor: OFFO

Section #: 6.1 Pg #: 6-1 Line #: 23-24 Code: C

Original Comment #:

Comment: The requirements of 10 CFR 834 (Proposed Rule) should also be included. It is likely that this rule will become effective during the OU1 remediation.

Response:

Action:

57.) Commenting Organization: Ohio EPA Commentor: GeoTrans, Inc.

Section #: App. C Page #: C-25 Line #: NA

Comment: The calculation of Qi in equation 2 appears to contain an error. Please clarify.

Response:

Action: