

**LETTER INVOLVING DOCUMENTS RELATED TO
GROUNDWATER MONITORING AND
TRANSITION REPORTS PREPARED BY THE NEW**

09/25/86

**US HOUSE OF REP/DOE-FMPC
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LETTER**

Your staff has repeatedly testified at hearings before this Subcommittee that the DOE recognizes that it faces serious environmental problems at its sites, but assures Congress that DOE is embarking on a new course of strict oversight of environment, health and safety practices at its facilities. In fact, the DOE has been quick to blame its current environmental problems on "legacies of the past." The DOE has suggested that the environmental contamination resulting from past practices are in some way excused because they took place decades ago in a less environmentally attuned time. These documents totally refute that convenient notion that the problems of today are the result of unintentional and uninformed actions of the past. The Fernald plant was well-informed of the environmental hazards created by its operations from its inception.

The Westinghouse transition report on waste management at Fernald provides countless examples where recent waste management practices are still environmentally unsound. For instance, that report states that "[t]he covers placed over the pits 1, 2, & 3 do not comply with DOE and EPA regulations..." and consequently, there could be "...migration of leachate through the clay bottom and eventually into the groundwater supply." (pg. 14.) It appears that even to this day, Fernald is out of compliance with both DOE and EPA regulations.

From the second set of documents, let us draw your attention to excerpts from one document in particular, "Report of FMPC Ground Contamination Study Committee," prepared by the National Lead Company of Ohio, and dated September 30, 1962:

- 1) "Prior to and during the start-up of construction of the FMPC, the AEC [Atomic Energy Commission] requested the United States Geological Survey (USGS) to conduct a study....This study was conducted during May, August and September, 1951 by G. D. Dove and S. E. Norris of the USGS. From this action it is apparent that there was an awareness of the possibility of contaminating the ground water in the vicinity with the wastes resulting from FMPC operations." (pg. 3., emphasis added.)
- 2) "There is a definite potential that the FMPC activities might contaminate the aquifer....This is a major consideration inasmuch as ground water is a vital natural resource and if it were to become contaminated, serious legal and public relations problems would be created." (pg. 6.)
- 3) "The problem of Paddy's Run contamination could be solved by purchasing the right of way to Paddy's Run to the Miami River. This committee considered the advisability of doing so, but it was agreed that to purchase this stream at this time would raise a question as to what had been occurring in this stream for the past 10 years and undoubtedly would result in some unfavorable publicity." (pg. 14.)

- 4) "At this writing there is conclusive evidence that the FMPC operations have affected the ground waters underlying the site." (pg. 16.)
- 5) "There are three potential sources of possible ground water contamination arising from the operations carried out at the FMPC. These are:
 - "a. The four pits through which contaminated liquids will always seep to some degree, and more so if a leak develops in any of them....
 - "b. Paddy's Run....The porous bottom of this stream, which in some locations has completely collapsed, permits water to pass through it and subsequently into the upper aquifer....
 - "c. Material handling difficulties...." (pg. 18-19.)
- 6) "Probable Results of Pollution of the Ground Water:
 - "1. If pollution of the ground water by chemicals from the plant should occur, the cost and difficulty of treating the water to make it suitable for use will be increased even though the degree of pollution may be small.
 - "2. If the concentration of contaminants should become excessive it is possible that the water from the production wells could not be treated to render it suitable for plant use.
 - "3. Wells other than those owned by the Government could be rendered unfit for use, thereby creating serious legal and public relations problems.
 - "4. The groundwater in the entire area could be rendered unusable for a very long period of time because the contaminants can only be eliminated by removing all of the polluted water from the aquifers. This would be a gigantic task if pollution accumulated for a long period of time before it is discovered." (pg. 19.)

Let us remind you that this report was prepared in September of 1962. Similar findings were made in even earlier reports. These reports are especially disturbing because they lead to one very tragic conclusion: the environmental dangers posed by the Fernald plant were well understood and frequently brought to the attention of plant operators, yet these warnings went unheeded. It appears that the environmental degradation of this area was both knowing and willful, and could have been avoided.

September 25, 1986

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As you know, the Department of Energy is currently conducting hearings and receiving comments on the scope of a proposed Environmental Impact Statement (EIS) concerning the Fernald plant. We request that you address the reports we are releasing today in the EIS and you use them to establish the historical record and pattern of environmental contamination at the plant.

We are enclosing selected excerpts from the reports we are releasing today as an attachment. In addition, you will find questions following a second group of excerpts which we request you answer by October 16, 1986.

Sincerely,

Edward J. Markey
Chairman

Thomas A. Luken
Member
Committee on Energy and Commerce

Enclosures

EXCERPTS FROM SELECTED FERNALD REPORTS
IN CHRONOLOGICAL ORDER

- 1) A report by J.D. Eye, Special Consultant, University of Cincinnati, College of Engineering, Cincinnati, Ohio, to Dr. J. A. Quigley, Director, Health & Safety Division, National Lead Company of Ohio, Cincinnati, Ohio, dated August 22, 1960 made the following findings:

"The three production wells at the Fernald site penetrate to the bottom of the deep aquifer. The wells are constructed in such a manner that water from the deep aquifer might possibly flow upward into the shallow aquifer during periods when the pumps are not being operated. When the wells are being pumped at rates sufficiently high to cause the water levels in the wells to drop below the shallow aquifer, water conceivably could flow downward into the deep water bearing formation. Thus, the wells themselves may form a natural avenue for the mixing of waters between the two aquifers and this, as will be shown later, has an important bearing on the ground water pollution potential from surface contamination in the plant site." (pg. 3.)

"The possibilities for ground water contamination with the various chemicals used in the Fernald Plant, are many and varied." (pg. 5.)

"The waste disposal pits form the most serious potential ground water pollution problem. These pits, excavated to a depth of 25 feet, extend below the somewhat impervious surface layers, and in some of these pit excavations lenses or deposits of pure sand and gravel were encountered. The bottom and sides of these pits were sealed initially with a layer of clay but there is no assurance that the seal is still completely continuous and water tight. In addition, fluctuations in the water level in Pit No. 3 have caused portions of the sidewalls to fall or slip, thereby destroying much of the clay liner on the sides of the pit. When the waste level rises above these "slip" areas, seepage may become quite pronounced." (pg. 7.)

"The so-called dry waste pits likewise are a potential source of ground water pollution." (pg. 7)

"The thorium residues stored in drums on a concrete storage pad pose the most serious threat in terms of radioactive materials. As long as the drums are intact and no spillage occurs, the thorium presents no particular hazard. It was observed, however, that

many of the storage containers have deteriorated to a point where the contents are spilling out onto and over the edges of the pad. Redrumping operations have had to be initiated. Rainwater and surface runoff from the pad can carry exposed thorium residues into the surface drainage system from whence it may gain entrance into the sub-surface waters." (pg. 8.)

"The K-65 Area and the concrete trench leading to it form another important source of potential radioactive contamination for the ground water." (pg. 8)

"Wells other than those owned by the Government can be rendered unfit for use, thereby creating a serious legal and public relation problem." (pg. 8.)

"The ground water in the entire area could be rendered unusable for a very long period of time because the contaminants can only be removed by eliminating the source and then removing all of the polluted water from the aquifers. This would be a gigantic task if pollution accumulated for a long period of time before it was discovered." (pg. 8-9)

"There are many sources of surface contamination in the plant site. It is possible that ground water pollution can result from any or all of these sources." (pg. 10)

- 2) Following are excerpts from a letter from J.D. Eye to Dr. J. A. Quigley, M.D., dated January 23, 1961:

"The inside walls of Pit #3 show evidence of considerable 'slipping' or 'spalling' and it is likely that some of the clay liner on the sidewalls has been destroyed. If this is the case, pronounced seepage may occur when the water level in the pit rises above these 'slip' zones." (pg. 4.)

"The thorium residues stored in drums on a concrete storage pad pose the most serious threat in terms of radioactive materials....It was observed...that many of the storage containers have deteriorated to a point where the contents are spilling out onto and over the edges of the pad." (pg. 5.)

"The data listed...prove conclusively that there is some leakage from Pit #3 into Test Well #5." (pg. 10.)

"There was a small amount of waste seeping through the stream (Paddy's Run) bank just west of Pit #3."

"The soil sample analyses gave evidence of rather

widespread surface contamination in the Production Area and along some of the major roadways." p. 22

"The wet and dry pits in the K-65 Area form the greatest potential hazard from a ground water pollution standpoint, and also with respect to potential pollution of Paddy's Run Creek." (pg. 22)

- 3) Following are excerpts from a report from J. D. Eye to Dr. J. A. Quigley, M.D., dated June 28, 1961:

"...all potential pollution hazards to the groundwater must be eliminated and that failure to do so ultimately will be extremely costly and result in great inconvenience to the FMPC operation." (pg. 1.)

"The fact that the City of Cincinnati is considering the Miami Basin as a source of municipal water supply increases the urgency of applying appropriate procedures in the FMPC area to prevent any chance contamination of the groundwater." (pg. 11.)

- 4) Following are excerpts from letter to Mr. C.L. Karl, Area Manager, U.S. Atomic Energy Commission, P.O. Box 188, Cincinnati, Ohio from J. H. Noyce, National Lead Company, Cincinnati, Ohio, dated July 26, 1961:

"...to date there has been no indication of any contamination of our, or to our knowledge any other, water supply. However, this in no way assures us that such will not happen in the future....We plan to go ahead with the recommendations as listed in his [J. D. Eye's Jan. 23, 1961] report." (pg. 2.)

- 5) Following are excerpts from letter from J.D. Eye to Dr. J.A. Quigley, dated May 25, 1962;

"In the reports which I submitted in 1961, evidence was presented which showed that there was some leakage of waste materials from the waste disposal pits in the K-65 area into the shallow ground water. Test Wells Nos. 3 and 5 consistently showed chloride and nitrate concentrations far above those found in other wells in the Plant area. There also were some leaks found around the base of the dikes of Pits 1, 2, and 3 although none of these leaks appeared to be of much significance."

"During the early winter months of 1961, Test Well No. 1 began to show evidence of contamination by chlorides and nitrates and steps were taken to have the well extended according to the recommendation of the 1961 report."

"I also believe that it is necessary to emphasize the urgent need for inaugurating corrective measure before damage to the plant and other local water supplies occurs."

"Test holes of small diameter should be drilled along the eastern side of the pit area to locate the major leaks from the pits."

"Horizontal wells can be driven under the entire pit area for the purpose of intercepting the wastes as they move downward through the bottom of the pit into the ground water."

"As long as there are acres of land covered with liquid wastes, the potential for ground water contamination will be an ever present menace to the operation of the plant."

6) Following are excerpts from "Report of FMPC Ground Contamination Study Committee," prepared by the National Lead Company of Ohio, September 30, 1962.

"The problem of Paddy's Run contamination could be solved by purchasing the right of way to Paddy's Run to the Miami River. This committee considered the advisability of doing so, but it was agreed that to purchase this stream at this time would raise a question as to what had been occurring in this stream for the past 10 years and undoubtedly would result in some unfavorable publicity." (pg. 14.)

"There are three potential sources of possible ground water contamination arising from the operations carried out at the FMPC. These are:

"a. The four pits through which contaminated liquids will always seep to some degree, and more so if a leak develops in any of them....

"b. Paddy's Run is a definite potential source of ground water contamination....

"c. Material handling difficulties...."

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QUESTIONS FOR DOE BASED ON SELECTED EXCERPTS
FROM WESTINGHOUSE REPORTS

The following are excerpts from the "FMPC, Final Phase-In Report Volume 4 of 15, Environment, Safety and Health, (Period October 25, 1988 thru December 31, 1985)," prepared by the Westinghouse Materials Company of Ohio.

- 1) "Break areas throughout the plant have been surveyed for contamination. Many of these areas are in excess of DOE 5480-1 Chapter XI guidelines and are in the need of cleaning and more rigorous monitoring....the contamination surveys performed in the facility indicate gross contamination in lab areas. Primarily the contamination exists on lab benches and sinks. No signs exist indicating the presence of radioactivity in the lab. No air monitoring exists in the laboratories. No extremity monitoring exists."
(pg. 8.)
 - a) Was DOE aware of these violations? If so, what actions were taken by DOE? Provide all documents which address such violations. If not, why was DOE not aware of these violations?
 - b) How many instances of non-compliance has DOE encountered at FMPC? Provide all sitings of non-compliance by DOE at FMPC from January 1980 to the present.

 - 2) "...[T]he NLO Staff had little, if any, time to develop and implement a comprehensive ES&H [environment, safety and health] program that would be auditable and would address all concerns that have constantly come up in past reviews. The predominant areas include, but are not limited to, the following:
 - i) lack of well documented training programs and material,
 - ii) lack of documented sampling procedures,
 - iii) lack of an overall ES&H Manual which establishes the criteria for development of procedures, QA requirements relative to ES&H activities,
 - iv) lack of a detailed, comprehensive Environmental Monitoring Program, and
 - v) lack of specific guidance to other functional organizations regarding ES&H needs and design criteria." (pg. 10.)
- a) How many times has DOE reviewed, audited, or appraised the ES&H program at FMPC from January 1976 to the

present? Please provide all such reviews or appraisals.

- b) Is DOE required by DOE Orders to review, audit or appraise the ES&H program? If so, please cite such DOE Orders, describe the requirements contained in such orders, and state whether DOE complied with such orders.
- c) According to DOE Order 5482.1A8a.(4), DOE has the authority to conduct "unannounced ES&H appraisals of facilities and activities for the purpose of spot check compliance monitoring." Has DOE ever conducted unannounced spot checks at FMPC? If so, please list the date and results of such spot checks. If not, why hasn't DOE conducted spot checks?
- 3) "...[A]ccountability procedures are archaic..." (pg. 11.)
- a) Does DOE share this assessment of accountability at FMPC under NLO?
- 4) "The most immediate problem is that some of NLO workers are or have been very close to DOE occupational dose limits." (pg. 12.)
- a) Has DOE ever reviewed or studied the reason why NLO workers are close to DOE occupational dose limits? If so, please provide all such reports, studies or correspondence concerning employee doses at Fernald.
- b) How does worker exposure at Fernald compare with other DOE facilities? Please supply any documents which compare such exposure rates among DOE facilities.
- 5) "All visitors to the FMPC are issued a visitor badge from a pool of such badges. At the end of each day, this badge is returned to the pool of badges, to be issued more or less at random to the next visitor. Although a record is kept of each badge used by each visitor, a single badge may be used by several or many visitors during any one month. Visitor badges are not processed until the end of each month. Temporary badges are handled in the same manner." (pg. 16.)
- a) Was DOE aware of this practice at Fernald before the Westinghouse transition report? If so, did DOE inform NLO that this practice was unacceptable? If not, why wasn't DOE aware of this practice? Please provide all DOE documents which address this practice from January 1980 to the present.

6) "Areas of Immediate Concern....doses to the hands are being underestimated by as much as a factor of two." (pg. 24.)

a) Was DOE aware of this practice at Fernald before the Westinghouse transition report? If so, did DOE inform NLO that this practice was unacceptable? If not, why wasn't DOE aware of this practice? Please provide all DOE document which address this practice from January 1980 to the present.

7) "An in-depth review of the FMPC emergency plan and implementation procedures was made along with an audit of the emergency plan performed by Los Alamos Technical Associates....They are in general lacking in the necessary detail to assure that personnel, property and the general public are protected in the event of a major emergency." (pg. 30.)

a) Was DOE aware of this situation before the Westinghouse transition report? If so, what studies, audits or appraisals of the emergency plan did DOE perform? Please provide all such documents to the Subcommittee. If not, why hasn't DOE conducted such reviews?

b) Is DOE required by DOE Orders to review the Fernald emergency plan? Please cite such orders, describe the requirements of such orders and explain if DOE complied with such orders.

c) What specific steps have been taken to improve emergency plans at Fernald? Is the general public now adequately protected? If not, when will they be?

8) "A review of training records indicated that procedures (for fire and safety) were not being followed." (pg. 31.)

a) Was DOE aware that procedures were not being followed before the Westinghouse transition report? If so, what studies, audits or appraisals of the fire and safety training procedures did DOE perform from January 1980 to the present? Please provide all such documents to the Subcommittee. If not, why hasn't DOE conducted such reviews?

b) Is DOE required by DOE Orders to review such procedures? Please cite such orders, describe the requirements of such orders and explain if DOE complied with such orders.

9) "A thorough review of the potential major emergencies

should be made with specific emphasis on release of hazardous chemicals. Plant and off-site fume dispersal calculations should be made for individuals that might be affected by UF₆, HF or NH₃ releases from the pilot plant or tank farm." (pg. 32.)

- a) Has such a review been undertaken by Westinghouse or DOE? If so, please supply to the Subcommittee any studies or reports which address this hazard. If not, please explain why such a review has not been undertaken.
 - b) Is DOE required to perform such a study according to DOE Orders. If so, please cite such orders, describe requirements of such orders and explain if DOE has complied with such orders.
- 10) "Drills involving off-site releases of radioactive materials and/or hazardous materials should be done and off-site monitoring capabilities tested." (pg. 32.)
- a) Have such drills been planned or executed? Please explain why or why not.
 - b) Has an "emergency response information pamphlet" been prepared as recommended? If so, please provide a copy. If not, explain why such a pamphlet has not been prepared.
- 11) "...[T]here is are [sic] no formal radiation worker or radiation monitor training and qualification programs....Procedures issued for radiological controls exist, but are highly fragmented and are basically in the form of SOPs." (pg. 33.)
- a) Is DOE required by any DOE order to have a formal radiation worker or radiation monitor training and qualification program at the Fernald facility? If so, please site such order, describe the requirements of such order, and explain if DOE has complied with such order.
 - b) Has DOE reviewed, audited or appraised such programs? If so, please supply any such reviews, audits or appraisals to the Subcommittee. If not, is DOE in non-compliance with DOE Orders?
- 12) "No formal ALARA program was found to exist." (pg. 33.)
- a) Is DOE required by any DOE Order to have formal ALARA program? If so please site such order, describe the

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requirements of such order, and explain if DOE has complied with such order.

- b) Has DOE reviewed, audited or appraised such program? If so, please supply any such reviews, audits or appraisals to the Subcommittee. If not, is DOE in non-compliance with DOE Orders?

13) "The entire Enviromental Monitoring program seems weak regarding monitoring off-site areas, particularly with respect to air and soil." (pg. 38)

- a) Do you agree with this assessment of off-site monitoring? Please explain in detail, citing specifics why or why not you agree?
- b) What steps, if any, have been taken to improve off-site monitoring?

14) Please provide an update of actions taken or completed which were identified in Attachment 11, "FMPC Emergency Response Program Assessment."

"14. Is adequate transportation available at all times for emergency evacuation of FMPC?...No. Personnel use own transportation, no recommended action for plant evacuation."

"16. Are there provisions for adequately training of FMPC employes in emergency preparedness?...No."

"21. Does FMPC maintain a supply and documented inventory of emergency equipment in a state-of-readiness?...No."

"23. Does FMPC have a plan for assessing and completing corrective actions for safeguard and security emergencies?...Not observed."

The following are excerpts from "FMPC, Final Phase-In Report, Volume 11 of 15, Waste Management, (Period October 25, 1985 thru December 31, 1985.)" prepared by Westinghouse Materials Company of Ohio.

- 15) "The Environmental Monitoring Program for FMPC should be upgraded to identify specific monitoring needs, bases, and means of accomplishing them. The program would be structured to assure compliance with DOE Orders and EPA regulations. The results of this program should direct the need for monitoring upgrades, such as upgrading the waste pit area monitoring system

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to comply with regulations." (pg. 17.)

- a) Which DOE Orders and EPA regulations is Fernald currently not in compliance with in terms of its Environmental Monitoring Program?
 - b) Is DOE required by DOE Orders to review, audit or appraise the Environmental Monitoring Program? If so, please cite such DOE Orders, describe the requirements contained in such orders, and state whether DOE complied with such orders. Please provide all reviews, audits or appraisals of the Environmental Monitoring Program.
- 16) "As expected, extensive deficiencies were found in Waste Management Engineering at FMPC. The causes for these deficiencies may be due to a multitude of factors, the more significant of which are believed to be:
- "Funding limitations
 - "A pre-environmental-activism philosophy that did not proceed into present day environmental philosophy perhaps due to its defense related isolation from public attention.
 - "Less than aggressive management which may not have placed sufficiently high priority on the Waste Management area of the FMPC operations."
- a) Does DOE agree with this assessment? Please explain in detail why or why not DOE agrees with these statements.
- 17) Please provide a copy of the ES&H Management Plan.
- 18) Please provide copies of all documents from the residue committee meetings, including minutes of meetings, reports, and studies.
- 19) Please provide a complete copy of WMCO's Final Phase-In Report.
- 20) The "Development Department and the Production Technology Department Report for the month of July 1985," states on page 20 that the removal of residues from the greenhouse has been suspended because of the presence of plutonium in pit material.
- a) Provide all documents which address the presence of plutonium in such materials.

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