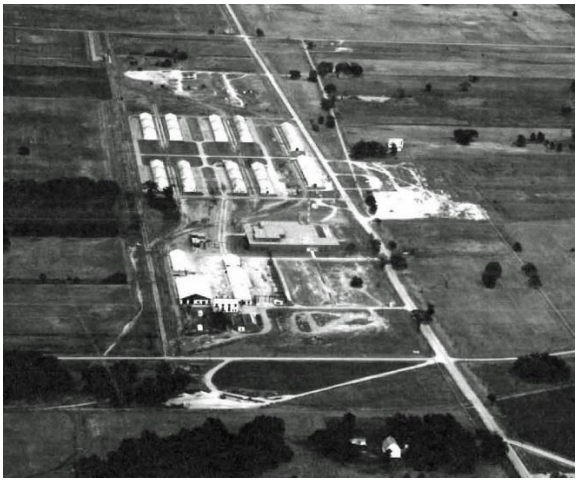
Report on Scioto Laboratory (Dayton Unit 6) on why it should be covered under EEOICPA



What was Scioto Lab?

In 1948 Monsanto Chemical Company, under contract with the Atomic Energy Commission (AEC), began construction on a facility near Marion Ohio. The purpose of Scioto Lab was to function as a back-up facility for Mound in case of an accident, sabotage, or attack. At the time it was constructed Mound was the only facility in the country producing the polonium initiators needed for atomic bombs. The AEC feared that if Mound was put out of commission the entire nuclear weapons industry would grind to a halt. To insure this didn't happen Scioto Lab was created. [1] On June 15, 1949 the AEC purchased 1276.87 acres which had formerly been the Scioto Ordnance Works from the War Department for $631,250 [2].

The document, *Hazardous, Toxic and Radiological Waste Archives Search Report for Marion Engineer District*, page 36, states, ""As illustrated in Table 4-2 above, the Atomic Energy Commission (AEC) purchased a portion of Scioto Ordnance Plant land for the development of an atomic research installation. The Monsanto Chemical Corporation operated the site for the AEC. The site was purportedly used for the investigation of basic chemical problems in the field of Atomic Energy (see document H-1)." [3]

The same document on page 64, describes Scioto Lab, "The AEC area complex originally consisted of approximately 1,265.62 acres of land and 11.25 acres of utilities and was composed of Area A, Area T, Area S, and the large Classification Yard. The immediate area of the Scioto Laboratory complex consists of approximately 25 acres of land and includes the Shops Area. The immediate Scioto Laboratory, known by such other names as the Monsanto Building after the AEC contractor who operated the plant, consists of approximately 1 acre of land". [3]

How was Scioto Lab related to Monsanto, the Dayton Project, and Mound?

A Monsanto document, *Mound and Scioto Laboratories-A Brochure on the AEC Facilities Operated by Monsanto Co.* states on page 9 that Scioto Lab was a daughter

facility to Mound [4]. It was also related to the Dayton Project and was originally known as Dayton Unit 6 [5], just as Mound was originally known as Dayton Unit 5 [6]. After completion, Unit 6 became known as Scioto Laboratory. While Scioto Lab documents were published under Dayton Unit 3 [5, 7], Scioto Lab [8-12], or Monsanto [13-16] the majority of them were published at under Mound [6, 17-48].

Did Scioto Lab work under an AEC contract?

Scioto Lab work was done for the AEC under contract AT-33-1-GEN-53 [4, 8-10, 14-17, 23-25, 27, 34-39, 42, 44, 48-50], although there could have been other contracts I didn't locate. *AT-33-1-GEN-53, Modification No. 9* from September 23, 1954 discusses the discontinuation of standby operation at Scioto Lab on page 1. [50]

Also in 1949, when Scioto Lab construction was completed Monsanto issue *Construction Completion Report* which states on page 3, “It has been prepared to meet the stipulation contained in Contract No. AT-33-1-GEN-53, effective 1 January 1945. Article II-A, under Architectural and Engineering Services according to excerpted paragraph, 11-d, as follows: “Prepare a completion report covering work done under the program”. The specific items included in the report were developed through conferences and correspondence with representatives of the AEC Area Manager located at Miamisburg, Ohio. The prime intent of this report is to acquaint the reader with the project in regard to design, construction and costs. In general this report is a history of the design and construction period which ended at the time the facilities were accepted by the Operations Group of the Monsanto Chemical Company, (around October 1949)”. [16].

A June 1949, Mound *Production Report* states on page 2, “The construction of Scioto Laboratory is now 99 per cent complete. The Process Research Building was turned over to Monsanto Chemical Company for beneficial occupancy on June 22, with a list of eight exceptions in isolated areas. Final balancing of air distribution is being held in abeyance pending receipt of new sheaves for fans. All process and service piping has been completed. The stack fan has been delivered, and the stack and breaching section is complete. In the Waste Disposal Building plastering has been completed and process and service piping are 98 per cent complete. The Power Building and the Change House have been accepted by Monsanto." [18].

A 2004 document, *Former Scioto Laboratory Complex Marion Ohio Final Preliminary Assessment* states on page 21, “Available information does not indicate any specified use for the SLC between 1954 and 1970. The GSA produced a brochure highlighting the site features for potential buyers (circa 1955) and subsequent memorandums document potential site buyers. No documentation identified a change in ownership or any lease agreements for this time period. Therefore, it is believed that the building was vacant and unused, awaiting sale between 1954 and 1970."

How many workers worked at Scioto Lab?

An August 2, 1948 report, *Installation Work at Scioto Laboratory* [7] issued by Dayton Unit 3 is the earliest document located to discuss the manpower that would be working at Scioto Lab. It appears they anticipated workers from a number of job categories and

that, at first, many of them would come from Mound on a temporary basis but others might be based in Marion.

Scioto Lab Organization Charts were located for 1949 (*Outline for Cold Stand-by Operation for Scioto Laboratory*, page 9) [8] , 1950 (*Mound and Scioto Laboratories-A Brochure on the AEC Facilities Operated by Monsanto Co.*, page 204) [4], 1951 (*Contract No. AT-33-1-GEN-53, Modification N. 2*, pages 3-4) [10], and 1952 (*Comparative Study of Mound and Scioto Operations AEC Contract vs. Private Ownership*, pages 43-44 [51]. Some of these list the number of employees working at Scioto Lab during the year.

1949 Mound *Electronics Accomplishment Report*s discuss workers who were sent temporarily and transferred permanently to Scioto Lab [38, 39]. 1949 and 1950 Mound *Production Reports* [21, 22, 26] list the number of workers working at Scioto as between 58-62.

The May 12, 1949 document *Mobilization Planning-Manpower Requirements for CY-1949-1952* provides numbers of current Scioto employees and estimated workers for later years on pages 3-4 [41].

The May 1953 Mound newsletter Mound Builder discusses Scioto Lab employees on page 1. The Mound Builder states, Scioto laboratory employees received well deserved recognition for their enviable safety record at the First Annual Safety Award Dinner held at the Marion Masonic Temple April 21…Scioto employees have more than just a perfect record for 1952. As a matter of fact, they have a perfect record ever since the laboratory was opened four years ago. They have accumulated 442,161 man-hours (1506) days without a lost time injury as of May 15, 1953" [29]

Was Scioto Lab a stand-alone facility or a Mound department?

One issue is whether Scioto Lab should be considered a department of Mound or a stand-alone facility under EEOICPA. The documents located on this were not clear-cut.

The November 1949 document, *Outline for Cold Stand-by Operation for Scioto Laboratory*, the organization chart on page 9 seems to indicate that Scioto Lab was considered a department of Mound [8].

The May 1950 document, *Extended Operations at Scioto Laboratory* estimates the number of employees that would be necessary if Scioto Lab was changed to hot standby in an organization chart beginning on page 21. This chart again seems to consider Scioto Lab a department of Mound rather than a stand-alone facility [9].

In the October 23, 1950 document, *Mound and Scioto Laboratories-A Brochure on the AEC Facilities Operate by Monsanto Co.*, page 204 the organization chart list Malcolm M. Haring as "Laboratory Director" under Joseph Burbage. There is a note on the chart that "Mound Laboratory Division Directors and Section Chiefs act as advisors to Scioto Laboratory Business manager" which seems to imply that Scioto Lab was separate from Mound [4].

The June 1952 Mound Builder newsletter states that Dr. Burbage, "became executive director of Mound and Scioto Laboratories in June 1950". [52]. The Monsanto

magazine from the same month states,"…Burbage is today Monsanto's executive director for this laboratory and the associated Scioto Laboratory at Marion, Ohio"[52]. Page 3 of the magazine article states, "Samaras, now project director (and Central Research director) replacing Hochwalt (who in 1949 was elevated to Monsanto's five-man Executive Committee in St. Louis) gives the word: "We operate Mound and Scioto Laboratory (at Marion, Ohio) for the AEC under a long-term, cost-plus-fixed-fee contract."[52]

What equipment did Scioto Lab have and were did it come from?

Scioto Lab was equipped to do the same polonium production as Mound. Monsanto developed two engineering Manuals as required by contract for Scioto Lab. These manuals were done in the same format as Mound's engineering manuals. *Engineering Manual for Equipment and Services-Scioto Lab, Volume 1*, page 2, states, "This manual has been prepared to meet the stipulation contained in Contract No. AT-33-I-GEN-53 effective 1 January, 1945, Article II-A, under Architectural and Engineering Services according to the excerpted paragraph as follows: "Prepare instructions for the proper operation and maintenance of all utilities and operating equipment designed by the contractor. This manual has been prepared in two volumes." [14] Volume 2 could not be located.

The *AEC Dayton Area Summary of Operating Costs Highlight Statement* states, on page 10, "The primary functions of Mound and Scioto Laboratories are the production of alpha-active elements (currently Po 210) and the fabrication of initiators, using these alpha emitters. Scioto is currently equipped for polonium production and is maintained in standby condition. It will remain in this status until such time as development of actinium 227 or polonium 208 processes prove successful."[53]

Mound documents make it very clear that Mound developed and constructed much of the equipment for Scioto Lab.

An April 30, 1949 Mound *Calorimetry Progress Report* states, on page 6, "The calorimeters for Scioto Laboratories are in the process of being constructed. They are to be Calorimeter 39 type." [49]

Numerous Mound *Electronics Accomplishment Reports [38, 39, 42-44]* from 1948 and 1949 track the progress of equipment that Mound constructed and ordered for Scioto Lab, as well as personnel installing it.

Other Mound documents discuss other aspects of equipment provided to Scioto Lab along with costs [5, 22-25, 28, 48].

Mound *Production Report for June 1949, Part 1*, page 3 states that only bare essential Mound work was being done at the time in order to get the Scioto Lab work completed, "We are still concentrating of the items required for Scioto Laboratory. After a recent survey, a new priority list is being made so that items required first for installation will be made up in the Machine Shop in that order. To concentrate on this work for Scioto Laboratory, we have allotted men and machines to maintain only the bare production essentials for Mound laboratory. This condition will probably continue for another two months."[18]

Who paid for the construction and operation of Scioto Lab and what was the budget?

AEC paid for all costs for Scioto Lab. Many of the documents located detailing Scioto Lab costs also report on Mound costs [12, 13, 20, 22, 28, 30-33, 47, 51, 53, 54].

In 1948 Monsanto's *Scioto Laboratory-Estimate Comparison and Commitment Summary* [11] gives estimates of construction costs for Scioto Lab.

In 1949 Monsanto's *Construction Budget for Scioto Laboratory* [12] provides details on Scioto Lab's AEC budget on pages 4-5 for 1949.

The *US Atomic Energy Commission Dayton Area summary of Operating Costs [53],* page 9, gives estimates of operating costs for Scioto Lab as $393,990 for 1951, $900,000 for 1952, and $1,400,000 for 1953.

A July 22, 1952 *Dayton Area document, Operations Costs and Adjusting Items-Schedule I*, page 1 [54] gives a cost for Scioto Lab for 1952 of $457,906, an estimate for 1953 of $435,000, and an estimate for 1954 of $1,175,000.

FY 1953 Costs by Activity Monsanto Costs Operating Costs, page 1 [13] gives an estimate of $435,000 for Scioto Lab for 1954.

Mound's *Summary of Operating Cost by Program, Sub-Program, Category and Activity for Period May 1953*, page 1 [30] gives May costs for Scioto Lab of $20,771.33 and year to date costs from July 1, 1953 as $364,562.38.

An August 4, 1954 communication from Mound to Oak Ridge, page 1 [33] gives standby costs of Scioto Lab as $266,424.

Monsanto's *Mound Laboratory Cost-Budget Report for FY 1955 through July 31, 1954*, page 2 [32] gives the current month and fiscal year to date cost of Scioto Lab as $5,970.

Mound Laboratory Monthly Report for February, 1955, page 23 [47] provides the operating cost of Scioto Lab from July 1, 1934 to January 31, 1955 as $593.56. The estimated cost for February 1955 is zero.

What operations were done at Scioto Lab?

The documents reviewed didn't show any production occurring at Scioto Lab. The largest number of Scioto employees were security and maintenance workers. Several different proposals were made for Scioto operations but no evidence was found that any of these occurred.

Completion Report for Disposal of Unit 3, page 16, proposes, "We have very extensive storage facilities at Scioto Laboratory which would be ideal to care for valuable contaminated equipment during a few years of "cooling off. If Such equipment could be "cocoonized," covered with a strippable plastic, or left "as is" depending on its nature and the degree of contamination" [17].

Mound's *Outline for Cold Stand-by Operation for Scioto Laboratory (Limited Operation and Maintenance)* [8] discusses how Scioto Lab will be operated in a "cold stand-by condition".

A May 1950 Scioto Lab document, *Extended Operations at Scioto Laboratory* [9] discusses the possible methods of operating Scioto Lab: Hot Standby, Full Operation with Mound Laboratory Assisting, Full Operation with Mound Laboratory not Assisting. This document seems to be a proposal for other operations using polonium 208 or actinium at Scioto Lab, as well as discussing Scioto Lab taking over for Mound in case of an attack.

The Mound document, *Comparative Study of Mound and Scioto Operations AEC Contract vs. Private Ownership*, page 4, states "Monsanto Chemical Company was asked, September 23, 1952, by the Atomic Energy Commission, to prepare a study of the operations of the Mound and Scioto Laboratories, located respectively at Miamisburg and Marion, Ohio. This study would be a comparison of operations under the present contractual and directive relationship with the same operations if Monsanto were the private owner of these facilities and subject only to its normal business practices."[51] The document goes on to consider how privatization would reduce the manpower needed and costs of operating Scioto Lab.

An October 31, 2004 Army Corps of Engineers report, *Former Scioto Laboratory Complex Marion Ohio Final Preliminary Assessment*, page 21 [1] discusses how Scioto Lab was considered for a polonium-208 initiator or actinium initiator plant.

Were there radionuclides at Scioto Lab?

No documents were found that provide evidence that Mound ever shipped any radionuclides to Scioto Lab during the time the AEC owned the site. From the documents reviewed it seems unlikely this happened. However, documents exist that show radionuclides on site prior to when the AEC acquired Scioto Lab which the AEC monitored. These may or may not have been there during Scioto Lab's operation years. It is documented that the AEC monitored for radium prior to the AEC purchasing Scioto Lab.

As with many AEC facilities there were many strange stories about the facility. These involve radium and uranium being stored at Scioto Lab. Some sources said that uranium was stored during the war in the basement of Likens Chapel on the Marion Engineer District. I was unable to determine if Likens Chapel became part of Scioto Lab when the AEC purchased the property.

Another story that does have evidence in the record concerns metascopes being stored at the property. The record also shows evidence that the AEC monitored and processed radiation badges for workers guarding this material. During WW2 it was common for the War Department to come up with a cover story to keep quiet certain facts of what they were doing. One such cover story was that the Dayton Project's Runnymede Playhouse, or Unit 4, had been acquired to do films for the military when in fact it was used to produce polonium. It is not clear whether there were actual metascopes being stored at the Marion Engineer District/Scioto Lab or whether this was

another cover story. It is curious that later documents show that they surveyed for uranium and polonium, when neither of these would have been created from radium decay. It's obvious that more research is necessary on this subject.

A 1997 letter from the Department of Energy (DOE) documents on page 1 that the AEC did radiation monitoring on the property, "It appears that the New York Office of the U. S. Atomic Energy Commission (AEC - a predecessor) provided radiation safety support for the Marion Engineer Depot. The depot was used as a storage area for metascopes, which were an early night vision device. Each metascope contained radio we radium. The monitoring reports show high radiation fields in storage area." And, "Based on these records, the action taken by the AEC was to measure the radiation field at the depot and process film badges for the depot." [55]

And a 1999 letter from DOE states on page 1, "Our records indicate that the former AEC performed radiation monitoring for the Army at the Marion Engineer Depot in 1947 and 1949. This monitoring was conducted in a storage area for some early night vision devices, known as "metascopes." or "sniper scopes. This Army equipment used radioactive sources as part of their mechanism. The measured radiation exposures in the metascope storage area were rather high. The Department has transmitted this information to the Army for its use in the conduct of its cleanup programs in letters dated 1982, 1987, and 1990." [56]

An April 17, 1947 *Report of Radiation Survey-Marion Engineer Depot* by the AEC contains documentation of one radiation survey done on pages 4-7. [55]

The 2004 *Former Scioto Laboratory Complex Marion Ohio Final Preliminary Assessment* indicates, but does not clarify, on pages 3-8 that materials might have been stored at Scioto Lab during operation years, "This identification is due to a large number (several thousand) metascopes (night vision equipment that contained radium} which were stored at the MED in 1946 and 1947. A radiation survey was conducted at the Depot in 1947 (AEC, April 1947). The metascopes were reportedly stored in buildings T 308 and T 509 at the former MED. At a later date (the 1950s), metascopes were also stored in building T 517 at the former Marion Engineer Depot. Since that time, several activities have been conducted to identify potential radiation exposure in relation to building T 517. These activities include two decontamination attempts in 1958 and 1961 by the Army, a radiological characterization study in 1998 by the ODH, and a residual risk assessment in 1999 by the USACE for the Department of Defense. The risk assessment indicated there would be no radiation exposure to either a worker or a renovator from the historic storage of metascopes in building T 517. AEC and other available communications regarding the metascopes do not mention storage at the SLC." [1]

Page 23 of the above document discusses a "limited site investigation for radiological contamination conducted by Science Applications International Corporation (SAIC)" on PR-Building and Likens Chapel which states, "The objective of the inspection was to determine whether gross evidence of radiological contamination was present within and around the PR Building and the basement of the Likens Chapel. The investigation of the PR Building was conducted in two phases. The first phase was an initial walk-through to gain familiarity with the site and included an alpha, beta, and gamma survey of suspect

locations. The second phase consisted of a systematic survey to characterize levels and identify exact locations of any radiation present. Three water samples were collected from the basement of the PR Building. Results from the radiological survey and analytical water samples indicated that radiation levels were well below accepted action levels. Specifically, the radiological contamination survey results identified no readings above 100 counts per minute for alpha nor for beta/gamma. The water sample analytical results included: gross alpha data, which were all below 3.1 picocuries per liter (PCilL) (the USEPA Maximum Contaminant Level (MCL) for gross alpha in drinking water is 15 pCi/L); isotopic uranium levels, which were all less than 1 pCi/L; and gamma activity scans, which did not indicate any readings above the minimum detectable level, with one exception. One sample indicated a potassium-40 activity of 158 +1- 106 pCilL; however, potassium-40 is a naturally occurring isotope and the observed level is not unusual." [1]

Page 29 of the same document states that no survey of the WD (Waste Disposal) Building was not done, "A radiation survey of the WD Building has not been conducted; however, based on the lack of evidence that radiological materials were ever stored or used at the SLC site and the absence of radiation identified during the PR Building survey, the presence of radiological contamination is not expected. Furthermore, no evidence of the storage of materials which may have adversely impacted the environment has been found. Therefore, the groundwater pathways are not complete for HTRW." [1]

The 1998 document, *Hazardous, Toxic and Radiological Waste Archives Search Report for Marion Engineer District*, states on pages 66-67, "Area U - Atomic Energy Commission (AEC) Area U is considered to have a potential HTRW presence. HTRW; radioactive materials and radiochemicals were potentially located at the WD Waste Disposal Plant. The U. S. Army Corps of Engineers, Louisville District, reported that a radiation survey was performed for the PR Scioto Laboratory; Monsanto Building; Process Research Building and the results showed the levels below background or action levels. A copy of the report was not obtained."[3]

A September 10, 1992 letter from the above document discusses whether it is worth the cost to survey the Monsanto Building (Scioto Lab's PR-Building) or not on page 180. [3]

It is clear from this document, page 365, that a complete radiation survey of Likens Chapel was not conducted in 1995, "A few random beta/gamma and alpha survey were then made upstairs, in the main floor of the chapel. The floor is made of wood. The clutter of old furniture and debris made a systematic survey impractical." and on page 362 the report discusses the PR Building/Monsanto building, "Extreme caution was used in investigating the upper floor because the roof was collapsed in areas, and the floor was covered with ice…The basement was not investigated because it was flooded."[3]

1949 Mound Monthly Health Information Reports provide radiation water and mud sampling. [34-36]

1. Former Scioto Laboratory Complex Marion Ohio Final Preliminary Assessment. 2004: US Army Corps of Engineers. p. 7.
2. *Sale of Scioto Ordnance Works to AEC*. 1949. p. 1-7.
3. *Hazardous, Toxic and Radiological Waste Archives Search Report for Marion Engineer District*. 1998: US Army Corps of Engineers. p. 3, 15, 21, 27, 36, 47-48, 58, 59-60, 66, 104, E-1, E-30, E-41
4. *Mound and Scioto Laboratories-A Brochure on the AEC Facilities Operated by Monsanto Co.* 1950: Mound and Scioto Laboratories. p. 11, 67-end.
5. McCarthy, E., *Machine Shop Requirements for Unit 6*. 1949: Dayton Unit 3.
6. *Construction Budget for Dayton Unit V*. 1949: Mound.
7. McCarthy, E., *Installation Work at Scioto Laboratory*. 1948: Dayton Project Unit 3.
8. Burbage, J., *Outline for Cold Stand-by Operation for Scioto Laboratory*. 1949: Scioto Laboratory. p. 11.
9. Burbage, J., *Extended Operations at Scioto Laboratory*. 1950: Scioto Laboratory. p. All.
10. Burbage, J., *Organization Chart*. 1951: Scioto Laboratory.
11. Gabler, G., *Scioto Laboratory-Estimate Comparison and Commitment Summary*. 1949: Scioto Laboratory.
12. Gabler, G., *Construction Budgets-Mound and Scioto Laboratories*. 1949: Monsanto.
13. *FY 1953 Costs by Activity* 1953: Monsanto. p. 1, 4.
14. Lueckerath, E., *Engineering Manual for Equipment and Services-Scioto Lab, Vol. 1*. 1948: Monsanto Chemical Company General Engineering Department. p. 5.
15. Lueckerath, E., *Engineering Manual for Equipment and Services-Scioto Lab, Vol. 2*. 1948: Monsanto Chemical Company General Engineering Department.
16. Lueckerath, E., *Construction Completion Report*. 1949: Monsanto Chemical Company General Engineering Department. p. 3.
17. *Completion Report on Unit 3*. 1949: Mound. p. 5, 7, 16, 18, 19, 21, 51.
18. *Production Report for June 1949 - Part I*. 1949: Mound. p. 2.
19. *Control Section Personnel Requirements-Scioto Laboratory Hot Standby*. 1949: Mound. p. 2, 3.
20. *Production Report for August 1949*. 1949: Mound. p. 1, 2, 6.
21. *PRODUCTION REPORT FOR DECEMBER 1949*. 1949: Mound. p. 12, 13.
22. *Production Report for October 1949*. 1949: Mound. p. 2, 3, 8, 10.
23. *Monthly Progress Abstracts of General Researech Liquid Waste Disposal Research and Biological Research for September 1949*. 1949: Mound. p. 12.
24. *Report for General Research October2- Dec. 26, 1950*. 1950: Mound. p. 23, 25.
25. *Quarterly Technical Activities through June 17, 1952*. 1950: Mound. p. 24.
26. *Production Report for May 1950*. 1950: Mound. p. 14.
27. *Appendix D Contract AT-33-1-Gen-53*. 1951: Mound. p. 1.
28. *Process Improvement*. 1952: Mound. p. 5, 8.
29. *Mound Builder*. 1953: Mound. p. 1.
30. *Summary of Operating Cost by Program…for Period May, 1953*. 1953: Mound. p. 1.

31. *Summary of Operating Cost by Program, Sub-Program, Category and Activity for Period*. 1953: Mound. p. 1.
32. *Mound Laboratory Cost-Budget Report for FY 1955 through July 31, 1954*. 1954: Mound. p. 1.
33. Almand, H., *DETAIL OF COSTS BY PROGRAM AND ACTIVITY TO SUPPORT RECAST COST BUDGET REPORT*. 1954: Mound.
34. Bradley, J., *Monthly Health Report*. 1949: Mound. p. 10.
35. Bradley, J., *MONTHLY HEALTH INFORMATION REPORT*. 1949: Mound. p. 10.
36. Bradley, J., *Monthly Health Information Report*. 1949: Mound. p. 10, 21.
37. Bradley, J., *Health Physics Monthly Information Health Report*. 1952: Mound. p. 4.
38. Curtis, M., *Electronics Accomplishment Report*. 1949: Mound. p. 3, 5, 6, 7.
39. Gnagey, L., *Electronics Accomplishment Report*. 1949: Mound. p. 3, 4, 5, 6, 10.
40. Haring, M., *Installation Procedure at Scioto*. 1948: Mound.
41. Haring, M., *Mobilization Planning-Manpower Requirements for CY 1949-1952*. 1949: Mound. p. 1, 3, 4.
42. Heyd, J. and P. Ohmart, *Electronics Accomplishment Report*. 1948: Mound. p. 21.
43. Heyd, J. and P. Ohmart, *Electronics Accomplishment Report*. 1949: Mound. p. 2, 3, 5, 6, 10, 13.
44. Heyd, J. and P. Ohmart, *Electronics Accomplishment Report*. 1949: Mound. p. 3.
45. McCarthy, E., *Personnel Justification Operations Division*. 1950: Mound. p. 11.
46. McCarthy, E., *Inspection Trips to Scioto Laboratory by the Operations Division*. 1952: Mound.
47. McCarthy, E., *Mound Laboratory Monthly Report for February, 1955*. 1955: Mound. p. 23.
48. McEwan, M., *Flow Meter for Measuring Air Flow through Special Hoods*. 1949: Mound. p. 3.
49. *Calorimetry Progress Report*. 1949. p. 5.
50. *AT-33-1-GEN-53 Modification No. 9 Supplemental Agreement*. 1954. p. 51-52.
51. Austin, F., *Comparative Study of Mound and Scioto Operations AEC Contract vs. Private Ownership*. 1952. p. 43-44.
52. *Mound Builder and Monsanto Magazine*. 19532: Mound and Monsanto. p. 2.
53. *AEC Dayton Area Summary of Operating Costs Highlight Statement*. 1951: Dayton Area. p. 1, 6, 8, 9, 10, 11, 25, 31, 34, 43, 56.
54. *Operations Costs and Adjusting Items-Schedule I.* 1952: Dayton Area.
55. Hayes, R., *Report of Radiation Survey-Marion Engineer Depot*. 1949: Department of Energy. p. 1, 2, 4, 5.
56. Fiore, J., *Fiore Letter from DOE on Scioto Lab-metascopes*. 1999: Department of Energy.