THE ASSEMBLY
STATE OF NEW YORK

THE FEDERAL CONNECTION:
A History of U.S. Military
Involvement in the Toxic
Contamination of Love Canal
and the Niagara Frontier Region

January 29, 1981

An Interim Report
to New York
State Assembly Speaker,
Stanley Fink

New York State Assembly
Task Force on Toxic
Substances

VOLUME II
FOOTNOTES & APPENDIX
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**LIST OF APPENDED DOCUMENTS**

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1. On May 23, 1978, Frank Ventry, a former Niagara Falls bulldozer operator at Love Canal, informed Donald O’Hara, then Niagara Falls City Manager, that while working at Love Canal for the City he witnessed three incidents in the 1949-1953 time frame involving the dumping of metal drums by Army personnel. Mr. O’Hara notified Congressman John LaFalce of these allegations, who thereupon requested that the Department of Defense conduct a thorough investigation. See pp. 109-11 infra.

On June 24, 1978, another Niagara Falls resident, Mr. Fred Downs, publicly stated that he too had observed, while a child playing in the Love Canal area, uniformed Army personnel disposing of drums in the Canal. Brown, M., "Defense, DEC Argue Dumping", Niagara Gazette, June 24, 1978. The allegations of these two eyewitnesses became the focus for the subsequent Army investigation.

2. The Army investigation and the August 14, 1978 Report are discussed at length at pp. 107-119 infra.

3. Troubling Assembly investigators most were certain factual errors and omissions in the August 14th Report concerning fundamental issues, such as the time period that Love Canal was in use, the question of phosgene production by Hooker, and the omission of any substantial discussion of the Manhattan Project activities which took place in the Love Canal vicinity. The interest of the Task Force was also aroused by the August 14 Report's ambiguous and understated conclusion that although there was no evidence of direct Army involvement at Love Canal, wastes from Army plants nevertheless "may have been placed" in the Canal by Hooker. See pp. 107-108, 113-116, infra.

4. The members of the Task Force are Assemblymen Maurice Hinchey, Alexander P. Grannis, Joseph T. Pillittere and Matthew J. Murphy.

5. Although an errata has since been issued, and an apology made, the Task Force again wishes to acknowledge the incorrect assertion in its Preliminary Report, at p. 19, that a seminary of the Buffalo Academy of the Sacred Heart is located on former federal land which is contaminated. This statement was founded on a misreading of government documents. There is no reason to believe that any of the lands upon which the Academy is located are or were contaminated.


10. The August 14 Report, carefully crafted for public release, was blurrier in detail and slightly more adversarial in tone than the Board of Officers Report.

11. The following is a partial chronological listing of the reports and surveys studying the LOOW site:


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Batelle Columbus Laboratory, "A Comprehensive Radiological Survey of the DOE-Niagara Falls Storage Site," March, 1980 (3 Vols.).


13. For example, radiological surveys have been performed for the following sites:

Bethlehem Steel Corp., March 1977 (DOE)
Linde Air Products, October, 1976 (DOE)
Simonds Saw & Steel Co., February 1971 (DOE)
Love Canal, Sept. 5, 1978 (N.Y.S. Dept. of Health)
Pine Bowl, Niagara Falls, April 11, 1979 (N.Y.S. Dept. of Health)
LaSalle Junior High School, September 25, 1979 (N.Y.S. Dept. of Health)
Artpark, Lewiston, N.Y., September 25, 1979 (N.Y.S. Dept. of Health)
Our Lady of Fatima Shrine, September 26, 1979 (N.Y.S. Dept. of Health)


15. "Efforts were continuing", the report noted, to identify additional sites. FUSRAP Report at 2.


18. A decontamination certificate and documents relating to the decontamination program at LOOW were part of the records of the War Assets Administration, which are stored at the National Federal Records Center in Suitland, Md. and the National Archives in Washington, D.C.


21. Unfortunately, not every agency takes its FOIA responsibilities so seriously. The Navy stated flatly that it would require approximately 2 1/2 months to respond to the Task Force's request and ignored the Task Force's inquiry as to why the delay was necessary. The 2 1/2 month time period expired on October 23 without a single document being received. The documents finally received (in November, 1980) were approximately 3 linear inches in volume, casting considerable doubt on the accuracy and exhaustiveness of the Navy's record search.

22. Testifying before the Committee were: Donald Hemke, Esq., Army Office of General Counsel, who was involved in drafting the August 14 Report; Messrs. Andrew W. Anderson and Donald L. Pugh, civilian employees with USA THAMA and members of the Board of Officers conducting the 1978 investigation; Major Thomas L. Gooding, a health expert with United States Army; and Messrs. Robert A. Breschi and Harold Sholik, civilian employees with USA THAMA, who were members of the 1978 Army investigation team.

23. World Book Encyclopedia, "Niagara Falls".

24. The discussion herein of the early history of Model City and the Love Canal is drawn primarily from the research and reports of Prof. David W. Parry, Associate Professor of Architecture at the University of New York at Buffalo. Professor Parry's unpublished paper, "History of Lake Ontario Ordnance Works 1940-1980", dated July 1979, the research summaries and documentation prepared by Professor Parry and his graduate students ("Parry Research Papers"), and Professor Parry's testimony before the Committee on September 8, 1980, provided useful background and insight into the fascinating history of development in the region, and the varying land use plans, both government and private, contributing to the transformation of lush, fertile farmland and orchards to what Prof. Parry describes now as "truly a wasteland". Testimony of David Parry, Public Hearing Transcript, Sept. 8, 1980 (AM), at 41.


27. To promote the scheme, a six-verse "Model City Song" (sung to the tune of Yankee Doodle Dandy) was composed. The third verse described the planned "Power Canal":
They're building now a great big ditch
Through dirt and rock so gritty
They say 'twill make all very rich
Who live in Model City,
(from Parry Research Papers).

28. E.T. Williams, "Government's Project Below Lewiston Escarpment Recalls Another Promotion in that Locale Which Planned a Great City and Power Canal Development," Niagara Falls Gazette, March 3, 1947, at 10, quoting an article appearing in the Gazette on May 26, 1894. A 2,000 foot-long, 90-100 foot wide section of the end of the Power Canal, located at the Lewiston escarpment was also excavated during this period. It was filled in during the 1930s, when it was used by Stauffer Chemical Co. and possibly by Union Carbide Co. as a dump for chemical and other wastes. See Interagency Task Force Report, at III-110; L. Moriarty, "Report on Love Canal Section, Lewiston, N.Y.", EPA, Sept. 7, 1979; Dominion Soil Investigation Inc., "Report of Lewiston Escarpment Project Analyses of Subsoil Conditions Whittaker Subdivision, Lewiston, N.Y.", March 1979; "Tiny Hamlet Marks Site of Dream City", Lockport Union Sun & Journal, 1935 (notes a "short-lived" excavation of the canal in Lewiston in the spring of 1896).


31. Task Force Interview with Arthur Tracy, June 1980, at 1; fn. 87 supra.

32. "Love's 'Model City' Under the Hammer", Buffalo Courier-Express, August 12, 1910.


34. Interagency Task Force Report at II-75; Statement by Bruce Davis, Executive V.P., Hooker Chemical Co., before the House Subcommittee on Oversight and Investigations, April 10, 1979, at 5.

35. Unfortunately, if any NPD records were retained by their attorneys, they were destroyed in a 1959 fire at the Gluck Building in Niagara Falls, where the records were stored.
The various plants operated by Hooker for the Chemical Warfare Service, and other government entities, particularly the heavy-waste producing thionyl chloride plant, CWS' hexachloroethane plant, and Hooker's dodecyl mercaptan facility, are discussed in greater detail infra at 85-91.

Minutes of Meetings of the City of Niagara Falls City Council, May 10, 1943, at 189; September, 1945, at 398.

Statement by Bruce Davis, fn. 33 supra, at 6.

Testimony of Lucinda McCombs, Public Hearing Transcript, Sept. 8, 1980 (AM), at 94-95.

Testimony of Alfred Jones, Public Hearing Transcript, Sept. 8, 1980 (PM) at 8. Jones, who witnessed Army dumping in 1942, testified that: "whatever was dumped in that Canal, we had to quit swimming because it burned our skin...".

It is not known who benefited from the sale, since NPD had officially been dissolved in 1939. The deed is signed by Wilton McK. Taylor, as "president" of NPD. Taylor's law firm had served as attorneys for NPD. Coincidentally, the same firm also subsequently served as attorneys for the Niagara Falls Board of Education.

In a letter dated April 28, 1953, Hooker reserved the right to continue to use the yet unfilled central portion of the canal for the disposal of Hooker waste. The Task Force is unaware whether this right was ever exercised by Hooker.

Statement by Bruce Davis, fn. 33 supra, at 6.

Minutes of Niagara Falls Board of Education, March 19, 1953, at 70.

In the course of excavation for the 99th Street School, a chemical pit outside of the Canal's boundaries was discovered lying beneath the site originally planned for the kindergarten play area. In using the Canal area as a dumping ground, Hooker had apparently dug at least two pits, estimated as 30 feet wide, 40 feet long and 20 feet deep, and filled them with drums containing chemical wastes. Following discovery of the pits and various soil tests, the site of the school was relocated 85 feet north. See Letters dated January 1, 1954 and January 1, 1954 from Cannon, Thiele, Betts and Cannon (architects) to Mr. Wesley Kester, Chairman of Building Committee, Board of Education, City of Niagara Falls. Cesium 137 was later detected in the area of these pits. See pp. 93-98 infra.

47. The processes at the Chandler Plant remain classified to this day. Unlike the other MED/AEC operations discussed herein, substantive documents relating to the plant could not, according to DOE representatives, be declassified.


49. Testimony of Fred Olotka, Public Hearing Transcript, Sept. 8, 1980 (AM), at 145.


51. Civilian Production Administration, Industrial Statistics Division, "Alphabetic Listing of Major War Supply Contracts (1940-1945)".

52. Army Board of Officers Report, fn. 6 (Finding II), infra, at 21.


54. As discussed infra, the TNT plant at LOOW, the Niagara Falls Chemical Warfare Plant, the Linde Ceramics Plant and the thionyl chloride plant operated by Hooker all commenced operation in 1942.

55. Testimony of Mrs. Lucinda McCombs, Public Hearing Transcript, Sept. 8, 1980 (AM) at 91.

56. Id. at 90.

57. Id. at 91, 93-94.

58. Testimony of Mr. Alfred Jones, Public Hearing Transcript, Sept. 8, 1980 (PM) at 7.

59. Id.

60. Id. at 8. Another Niagara Falls resident confirmed that Army dumping curtailed use of Love Canal as a swimming hole. The Task Force was told that when the Army began dumping large barrels into Love Canal in 1941 or 1942, the driver of the Army truck had warned the children in the area not to continue swimming in the Canal. The driver stated he came from the LOOW. Telephone Conversation with Mr. Robert Jarvis, July 30, 1980.

61. Transcript of Task Force Interview with Mrs. Mary Wahl, June 9, 1980, at 60, 67. She personally witnessed "at least five incidents". Id. at 62.
67. Id. at 61. Mrs. Wahl is referring to the Titanium Alloys Manufacturing Co. ("TAM") (now NL Industries, Co.), whose plant on Hyde Park Blvd. produced a variety of titanium and zirconium products. Wastes generated from the plant included, inter alia, large quantities of uncalcined titanium oxide and aluminum oxide with titanic impurity. Interagency Task Force Report, at III-93. It had previously been reported that wastes from the plant had been disposed of at a site "east and north of the plant". Id.

It is known that, as a contractor for the AEC, TAM produced and shipped to LOOW large quantities of zirconium. Zirconium wastes, and/or surplus buried at the LOOW site were known to have caused a series of explosions and fires. See pp. 242-243 infra.

68. Id. at 65.

69. Minutes of Niagara Falls City Council, May 10, 1943, at 189.

70. Id. Sept. 24, 1945, at 398.

71. Testimony of Mr. Ruben Licht, Public Hearing Transcript (AM), Sept. 8, 1980, at 227-228.

72. Id. at 228, 230.

73. Id. at 229-234.

74. Transcript of Task Force Interview with Mr. Ruben Licht July, 1980, at 43. Licht also recalled that an entire tank truck had been buried in the north end of Love Canal, and said that he had a photograph to prove it.

75. Testimony of M. Sgt. Donald Harris, Public Hearing Transcript, Sept. 8, 1980 (AM) at 57-58.

76. Id. at 60.

77. Id. at 61.
78. Transcript of Task Force Interview with M. Sgt. Donald Harris, July 1980, at 18.

79. Public Hearing Transcript, fn. 75 supra, at 69-70.

80. Id. at 62. Harris testified that he had not seen nor heard from Downs since the early sixties, although he was aware that Downs had made allegations similar to his. Id. at 63.

81. Testimony of Donald Pugh, Transcript of Army Appearance, at 324. Downs' testimony, another investigator observed, "was very vague" and self-serving. Id. at 318 (testimony of Andrew Andersen).


83. Id.

84. Testimony of William J. Jones, Public Hearing Transcript, September 8, 1980 (PM), at 138, 139.

85. Id. at 139. Jones' father, he recalled, had warned him that the Army was dumping in Love Canal, and "tried to keep us from the area".

86. Id. at 141. The dumping incidents were fascinating to "us kids", Jones told Task Force investigators, because the men were dressed in "olive-drab Army clothes". The "speculation" at the time, Jones remembered, was that the trucks came from the Army's Chemical Warfare Plant on Buffalo Ave. Transcript of Task Force Interview with William Jones, August 19, 1980, at 15-16.

87. Transcript of Task Force Interview with Lawrence Jones, August 19, 1980, at 62.

88. Task Force Telephone Conversation with Donald Fochee, August 22, 1980. Love Canal had at this time, Fochee recalled, been subdivided by dams into four sections. The Army and Olin, he believes, concentrated their dumping in the Canal's southernmost section. Id.

89. Id.

90. Transcript of Task Force Interview with Mrs. Willis Mosher, June 1980, at 109, 114-115, 117. Mrs. Mosher also recalled seeing Hooker's red trucks in the Love Canal vicinity.

92. Id. at 11, 14.
93. Id. at 14-15.
94. Id. at 15-18, 25.
95. Id. at 16.
96. Id. at 20-22.
97. Id. at 23-24. Ventry's testimony was consistent in all material respects with the sworn written statement he provided to the Army during their investigation, except that in the earlier statement he had recalled three rather than two incidents of Army dumping.
99. Id. at 57-59. Tracy's description of the trucks' color was not wholly consistent. At first, he said the trucks were green, Id. at 58, but then described them as brown, Id. at 60. This confusion might arise simply because of the difficulty in describing the standard Army "olive-drab". In his interview with the Task Force, Tracy described the trucks as green, while in his telephone conversation with Army investigators, he recalled that the trucks were "green or brown". Task Force Interview with Arthur Tracy, June 1980, at 51; Exhibit 57 to Army Board of Officers Report, Army Telephone Conversation with Arthur Tracy, July 26, 1978.
100. Testimony of Arthur Tracy, fn. 98 supra, at 60-64. The drums, Tracy recalled, were a slightly different shape than the standard 55-gallon drum.
101. Id. at 64-65.
102. Id. at 76.
103 Id. at 66.
104. Id. at 73, 78.
105. Id. at 67.
106. Id. at 66-67.
107. Id. at 67-68. Tracy's telephone conversation with Army investigators, while somewhat less detailed and colorful, was essentially in accord with his testimony. He told the Army that he was not certain that the green-coveralled men were Army personnel, but stated that he remembered seeing similar trucks as he saw at Love Canal at the CWS plant.
which he passed every day going to work. Exhibit 57 to Army Board of Officers Report, fn. 99 supra; Tracy's recollections were not discussed in the Board Report, which was issued just one day after the Army's telephone conversation with Tracy.

108. Several of the witnesses (Donald Harris, Arthur Tracy, William Jones, Ruben Licht) indicated that they were involved in or were contemplating lawsuits with regard to Love Canal. There is no reason to believe however that their testimony, which was consistent with the sworn accounts of other witnesses, was slanted or influenced by personal interest.

109. For example, Edwin and Eileen Voorhees, who lived in the Love Canal area during the 1940s and 1950s, recalled that there was a significant amount of dumping activity by private companies such as Hooker, but did not recall ever seeing military vehicles in the area. Testimony of Edwin and Eileen Voorhees, Public Hearing Transcript, Sept. 8, 1980 (PM), at 83-84.

Similarly, other veteran Love Canal residents interviewed by the Task Force did not remember seeing Army trucks dumping at Love Canal.

110. According to Elmer Rideout, a duPont engineer involved in the production process, impregnite, a chlorine-based compound, would act by neutralizing poison gas such as mustard on contact, before the gas was able to affect the skin. Task Force Telephone Conversation with Elmer Rideout, July 25, 1980.

111. The 3 other CWS plants were located at Edgewood Arsenal, Aberdeen, Md.; Midland, Michigan (operated by Dow Chemical Co.); and St. Louis, Mo. (operated by Monsanto).


115. Id. at 95; Contract No. W/266-CWS-148.

116. NYCWPFD History (July 1944-Dec. 1945), at 105-5.


118. Chemical Warfare Service, History of Niagara Falls Plant, at 1 (Exhibit 35 to Army Board of Officers Report).

120. At a total cost of $1,502,728, a new boiler plant was built, repairs were made to roads, walks and roofs of the building, and the ventilation system, underground piping, sewage system, and plant instruments were rehabilitated. History of Niagara Falls Plant, fn. 118 supra, at 4.

121. Id.


126. NYCWPD History, fn. 114 supra, at 96-97.


128. Id. at 4.1.


130. In a telephone conversation on September 3, 1980 with Task Force investigators, Lt. Col. (Ret.) Arnold Arch stated that off-specification impregnate would not have been disposed of because it could be reworked and combined with specification material. Arch was a second lieutenant at the plant in 1941-1943 and served as the "Contracting Officer's Representative" at the plant, its chief military representative, in 1951-1953.

Joseph L. Finster, formerly Assistant Property Officer at the NFCWP, similarly recalled that off-specification impregnate was reworked and not discarded. Task Force Telephone Conversation with Joseph L. Finster, Aug. 25, 1980. See also Exhibit 22 to Board of Officers Report, Notes of Interview with J.P. Fahey (retired duPont employee).

132. Minutes of a Meeting of the City Council of the City of Niagara Falls, May 14, 1942, at 205.

133. Id., May 25, 1942, at 209-210. The City Manager reported that he had consulted with Col. L. Johnson, who was in charge of the Chemical Warfare Plant. Joseph Finster, formerly an Army lieutenant at the plant, later recalled this "problem" with the "City Fathers". He noted that pollution from the plant had been blamed for killing trees, but that the problem had been solved "without fanfare." Exhibit 26B to Army Board of Officers Report, Telephone Conversation with Joseph Finster, July 20, 1978.

134. Minutes, July 1, 1942, at 268.

135. Minutes, August 9, 1943, at 329.

136. Minutes, August 30, 1943, at 350-351.

137. Minutes, September 1944, at 357.

138. 339 Residents who lived close to the Niagara Falls industrial section petitioned the City Council in 1945, complaining of gas from manholes and smoke and dust from neighboring industries. Minutes, September 9, 1945, at 385.


141. Technical Monograph, fn. 127 supra, at 16.3. Furthermore, the plant's pollution control equipment was subject to frequent breakdowns and misoperation. Letter from F. Olotka to T. Bernstein, dated August 1, 1966, at 3.

142. Letter from Dr. C.S. Groves to H.P. Jeffers, dated July 5, 1971. Jeffers had been hired by GSA to appraise the NFCWF property and he had retained Groves as a consultant.

143. Letter from F. Olotka to I. Bernstein, fn. 141 supra, at 1.

144. Id. "Organic impurities" were also discarded in the residue from the P-1 still. Technical Monograph, fn. 127 supra, at 7.2.

146. Id. (section on "P-1 reactors")


149. Memorandum from S. Eckhaus (Army) to Director, Weapons Development and Engineering Laboratories, March 8, 1968, at 2, 4.


152. Letter from F. Olotka to I. Bernstein, fn. 141 supra, at 1.

153. Id. at 2.


156. Fred Olotka testified at the Public Hearing that the estimate he made in his 1966 letter was "probably correct" since it would have been based on information as to how the plant was run in the past. Testimony of Fred Olotka, Public Hearing Transcript (AM), Sept. 8, 1980, at 159-60.

157. Id. at 160.

158. In his testimony at the Public Hearing, Mr. Olotka estimated that 60 drums per month of residue would have been produced, assuming that the plant's total production was 8-10 million pounds of impregnate Id., at 160. His production estimate was incorrect, as evidenced by the CWS production statistics from the recorded history of the plant. See fn.118 supra.

In his 1978 interviews with the Army, Olotka originally estimated that 30 drums of waste had been generated during Hooker's period of operations (totaling approximately 540 drums) and that similar amounts per month were probably produced when duPont operated the plant in 1942-1945. See fn. 154 supra.

159. Technical Monograph, fn. 127 supra, at 16.6. The sludge from the "P-1 recovery stills", it was noted, contained "P-1" (a chlorinated aniline) and insoluble organic impurities and should be "sent to the dump in iron drums". Id.

161. The plant superintendent, Elmer Rideout, stated in his interview with the Army that no solid wastes ever left the plant during his tenure. Exhibit 23 to Army Board of Officers Report. A duPont process supervisor, Charles Dewey, did not recall any drummed wastes. Exhibit 25 to Army Board of Officers Report. J.P. Fahey, a duPont process supervisor for the final two production steps did recall the generation of some solid wastes, such as filter cloths. Exhibit 22 to Army Board of Officers Report. Joseph Estes, a duPont process development engineer, stated that solid wastes were transferred to Necco Park. Exhibit 24 to Army Board of Officers Report.

162. Necco Park, a 25 acre site located in the industrial section of Niagara Falls, is now closed, and is literally surrounded by CECOS, a chemical waste treatment facility. There is at present no Army monitoring at the site, although duPont has installed test well equipment there.


164. Army Board of Officers Report, at 9, 18. Arnold Arch told Army investigators that while he was stationed at the NECWP during 1941-1943, there were several officers, no enlisted personnel, and no trucks or jeeps at the plant. If "trash" were dumped, he said, it would have been by duPont, using their own trucks. Exhibit 26A to Army Board of Officers Report, Statement of Arnold Arch, dated July 22, 1978; Task Force Telephone Interview with Arnold Arch, Sept. 3, 1980.


166. Task Force Telephone Interview with Joseph L. Finster, Aug. 25, 1980. Finster remembered the truck vividly because at the war's end, due to a lack of drivers, he had to drive it to a depot in Rochester for reassignement.

167. Id.


170. Task Force Interview with Arnold Arch, Sept. 3, 1980. The finished product, according to Arch and others, was packed in 100 pound fibre-board containers, and was transported from the plant by rail in boxcars.

171. Testimony of William O'Connor, Public Hearing Transcript, Sept. 9, 1980, (PM), at 99-102. As the testimony reflects, O'Connor's recollection of certain aspects of this incident at the Public Hearings had to be refreshed.

172. Id.

173. Fn. 165 supra.

174. Id. at 19. Frank Ventry, it will be recalled had stated that the Army personnel he saw at Love Canal informed him that they originated from the NFCWP.

175. Maj. Arnold Arch, the Army's "contracting officer's representative" at the plant during the Hooker period did not recall any solid waste disposal operation or problem at the plant, nor any dumping of solid waste and was adamant that there were never any Army trucks or enlisted personnel at the plant. Exhibit 26A to Board of Officers Report; Task Force Telephone Interview, fn. 164 supra. Similarly, Fred Olotka, Hooker's "technical supervisor" at the NFCWP, stated there were no enlisted personnel and no Army trucks at the plant. He admitted that as part of Hooker's normal procedures, solid wastes could have been landfilled by Hooker's yard gang or by a Hooker contractor. Exhibit 29 to Army Board of Officers Report, fn. 154 supra, Olotka's superior, Allan Walker, Hooker's plant manager at the NFCWP, also did not recall any Army vehicles at the plant or that "drummed residue" was even a "regular part of the process". Exhibit 31B to Army Board of Officers Report, Statement of Allan Walker; Task Force Telephone Interview with Allan Walker, Aug. 14, 1980.

176. Task Force Interview with John Gibson, August 26, 1980; Exhibit 31A to Army Board of Officers Report, Interview with John Gibson, July 1978.

177. Testimony of Carl Wagner, Public Hearing Transcript, September 8, 1980 (PM) at 105-106. In contrast, the Interagency Task Force Report, at III-73, based on the Army response to an EPA questionnaire, concluded that Wagner's firm had hauled wastes on Hooker's behalf from the NFCWP to the Love Canal. See Army EPA Questionnaire Response, Appendix A to New York Contamination Survey.


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181. Testimony of Donald Pugh, Transcript of Army Appearance, at 202. Chlorination of aniline was the first stage of the impregnate manufacturing process.

182. See letter from F. Olotka to I. Bernstein, fn. 141 supra.


184. Testimony of Donald Pugh, fn. 181 supra.


186. During this period, Army personnel were stationed at other facilities in the region, such as Fort Niagara, Lake Ontario Ordnance Works and the Niagara Falls Municipal Airport.

187. History of the Northeast Chemical Warfare Depot ("Depot History"), Office of the Chief, Chemical Warfare Service, at 1, 31. The Depot was commanded by Major Homer Deschanes, whom the Army has to date been unable to locate.

188. Id. at 32. The men were ill-suited to their assignment, since many were disabled by illness, injury or mental defect. Id. A dispatch from the Depot in this period advised in seeming desperation that "it does not appear to the best interest of the government especially where ammunition is concerned to make such assignments". Id.

189. Id. at 31.

190. Letter from Office of Transportation to Commanding Officer, Northeast Chemical Warfare Depot, August 23, 1945 (document attached to Depot History.)

191. Depot History at 53-54.

192. Testimony of Andrew Andersen, Transcript of Army Appearance, at 208; Task Force Interview with Joseph Finster, fn. 166 supra. Both Andersen and Finster were unaware of the storage of impregnate at the Depot.

193. History of NYCWPD, July 1944-Dec. 1945, fn. 116 supra, 105-12-105-13. Although operations at the NYCWP terminated on May 4, 1945, an April, 1945 contract amendment for an additional 1,200,000 pounds was apparently entered into just prior to the war's end. This last phase of production could have resulted in surplus lots of impregnate which would have been stored either at the NYCWP or at the Depot, or disposed of elsewhere.
194. The Depot History refers to the hauling by "semi-trailer van" of impregnite from the Niagara Falls plant. It was more efficient, it was noted, to place the drums on pallets at the source of production rather than to palletize at the Depot. Depot History at 53-54.

195. In April and May, just prior to the plant's closing, over 455,000 pounds of impregnite had been produced. History of NYCWFD, at 105-13.


197. Id.

198. Transcript ofArmy Appearance, at 208. Messrs. Andersen and Pugh admitted that there had been no follow-up on this question.

199. Testimony of Donald Harris, fn. 73 supra, at 58-60. Impregnite was described in a Chemical Corps. Manual as a "granulated material or powder, containing available chlorine, and varying in color from white to cream. Disposal Manual, fn. 202 infra, at 81.


203. Joseph Finster told Task Force investigators that one of his superior officers at the NFCWP had once conducted an experiment at the LOOW site which involved the burnability and flammability of impregnite. See Task Force Telephone Interview with Joseph Finster, fn. 130 supra.


205. Disposal Manual, at 1. Unauthorized items were allowed to be retained by field soldiers, but not in depot stock.
206. Disposal Manual, Section IV, at 1; Index, at 4 (impregnite classified as "Disposal reference 2"), at 81.

207. Id. at 81. In recommending demilitarization, the Chemical Corps. noted that the War Assets Administration (which had charge of post-war disposal) had declined to handle the sale by salvage of impregnites because, due to its classified nature, the impregnite would have had to have been sold to private buyers without divulging its chemical nature or method of manufacture. Possible sale by salvage was therefore "improbable". If sale could not be effected, the Manual directed that "surplus quantities should be destroyed or abandoned in the interest of military security."  Id.

208. Id.

209. The recommended methods for demilitarization did not provide authority for such action, the Disposal Manual cautioned, unless the commander at each installation explicitly ordered demilitarization. Id. at 2.

210. Id. at 81. Disposal by burial was probably most preferable for disposal of large quantities because the maximum quantity that could be demilitarized at any one time, the Manual advised, was "dependent on location". Other suggested methods, such as scattering on the ground (500 pounds per acre maximum), burning on the ground surface (200 pounds maximum) or burning in a pit (1000 pounds maximum) were more adaptive to smaller disposal operations. Id.

211. Testimony of Fred Olotka, Public Hearing Transcript, Sept. 8, 1980 (AM) at 1970. Olotka was Hooker's technical supervisor at the NFCWP during 1951-53.

212. Organizing for War, fn. 129 supra., at 430.

213. Id.

214. Id.

215. Id. at 430.

216. See Memorandum from E.E. Kirkpatrick, Corps of Engineers to Commanding General, Manhattan Project, July 12, 1946 (discussing the disposal at sea of radioactive wastes in cooperation with the Port Authorities of San Francisco and New York.); Memorandum from Maj. General L.R. Groves to Chief of Transportation, War Department, July 19, 1946.

217. Fn. 212 supra. The CWS received "more unfavorable publicity" when workmen were burned while unloading leaking shells from a munitions ship in Alabama. Id.
218. See, e.g. Memorandum from J. Loomis, WAA Legal Division Director to C. Williams, Director, WAA Property Management Division, September 4, 1946; Letter from R. Littlejohn, WAA Administrator to Vice Admiral W. Smith, United States Maritime Commission, August 3, 1946.

219. Memorandum From D. Strickler (WAA) to J. McCormack, August 15, 1946.

220. Letter from J. Miller (attorney for surviving spouse) to Mrs. Bailey Walsh, November 1, 1946.

221. Letter from Major General E. Hughes, Chief of Army Ordnance to Mr. R.M. Littlejohn, WAA Administrator.

222. Memorandum from Jack Higdon, District Supervisor, Surplus Property Disposal, Farm Credit Administration to E.E. Beatty, June 17, 1948.

223. Letter from J.B. Abbott, Sr., Chief, Non-Industrial Division, WAA, to T.L. Peyton, Director, Non-Industrial Division, May 10, 1948.


225. Testimony of Andrew Andersen, Transcript of Army Appearance, at 140-145. Andersen testified that the burial of phosgene cylinders was under any circumstances an unsafe procedure.


227. Id.

228. Id. After being shut down for a year, the plant was dismantled and ultimately reused by Hooker.


230. Testimony of Fred Olotka, fn. 156 supra., at 130.

231. Exhibit 45, fn. 223 supra.


234. Exhibit 7 to Army Board of Officers Report.

237. Id. The Reconstruction Finance Corporation was a government corporation founded in 1932 and designed to "engage in business and commerce". It was given responsibility by Congress during World War Two for financing and stimulating production of planes, tanks and guns, for financing the stockpiling of strategic metals and materials, and for the building and equipping of government and private war plants. The RFC established several subsidiaries, including the Metals Reserve Co., the Defense Plant Corp., (which built over 1000 war plants), and the Rubber Reserve Co. The latter built over 50 synthetic rubber plants during the war, which by 1945 had brought synthetic rubber production from zero to over 1 million tons annually. The RFC was abolished in 1957. "Preliminary Inventory of the Records of the Reconstruction Finance Corp., 1932-1964," National Archives & Records Service, at 1-2.

238. Fn. 226 supra.


240. Exhibit 44 to Army Board of Officers Report; Interview with Fred Olotka, July 21, 1980.

241. Id.

242. Testimony of Fred Olotka, fn. 156 supra, at 118; Task Force Interview with Fred Olotka, July 30, 1980.

243. Id.


245. P-45 Production Summary.


247. Task Force Interview with Fred Olotka, fn. 242 supra.

248. See Exhibit 44, fn. 240 supra.

249. Exhibit 44, fn. 240 supra.

250. Testimony of Fred Olotka, fn. 156 supra, at 119.

251. Exhibit 44, fn. 240 supra.

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252. Id.

253. Letter from General Counsel, War Assets Administration to J.F. Sonnet, Department of Justice, Feb. 18, 1948.

254. Completion Report, fn. 244 supra, at 15 (Supplement No. 1 to Contract No. 7405 eng.-28).

255. Testimony of Fred Olotka, fn. 156 supra, at 122. Waste magnesium or calcium oxide powder from this process was probably drummed and later disposed of. Id. at 124.

256. Exhibit 44, fn. 240 supra, at 4; Testimony of Fred Olotka, fn. 156 supra. at 124.

257. As part of the FUSRAP program, a radiological survey was conducted of the Hooker plant grounds in 1976, which showed that "residual radioactivity levels from the P-45 operation were within federal and state guidelines for unrestricted use of the property." FUSRAP Report, fn. 15 supra, at 138.

258. Testimony of Fred Olotka, fn. 156 supra., at 200, 201.

259. Id. at 201.


263. Task Force Interview with Roy Anderson, Sept. 13, 1980 (Anderson was formerly a production officer with MED's Tonawanda office).


266. Contract Nos. W-7401-Eng 14; W-26-121-Eng 46.

267. Fn. 259 supra.

268. A radiological survey conducted at the plant in 1976 showed surface contamination in two buildings and "quite extensive" contamination in two other buildings. Since this condition created a "potential radiation safety problem" for plant personnel, it was determined that "some form of remedial action" was required. Fn. 251 supra.
269. Interagency Task Force Report, at III-147, 148. "Some" form of remedial action is required at the Simonds facility. Id.

270. Alphabetic Listing of Major War Supply Contracts, fn. 51 supra.


272. Id.


274. Testimony of Dr. John Matuszek, at 20.

275. See Testimony of Dr. John Matuszek, at 41.


278. Id.


280. Id. at 26.

281. Id. at 43.

282. Id. at 43, 77.

283. Id.

284. Id. at 45-46.

285. Id.


287. Testimony of John Matuszek, at 49.


289. Memorandum from R.E. Hayden (AEC Medical Division) to F. Epp (Area Manager, Tonawanda Area), February 3, 1949.
290. Id.


292. Testimony of Carl Wagner, September 8, 1980 (PM), Public Hearing Transcript, at 100-117.


294. Id. at 102, 115. Wagner estimated that one of the pits he dug was 400-500 feet north of the present school site. Id. at 102.


296. 2 Restatement of Torts 2d, Sec. 433(a)(2).

297. This principle is well established in New York Law. In Slater v. Mersereau, 64 N.Y. 138 (1876), separate acts of negligence of defendant contractor and defendant sub-contractor united to cause injury to plaintiff's goods in adjoining building. The contractor was held wholly liable, the court stating that:

"Where separate and independent acts of negligence of two parties are the direct causes of a single injury to a third person and it is impossible to determine in what proportion each contributed to the injury, either is responsible for the whole injury; and this, although his entire act alone might not have caused the entire injury, and although without fault on his part, the same damage would have resulted from the act of the other."


See also Cajazzo v. Volkswagenwerk, A.G., 468 F. Supp. 593 (E.D.N.Y. 1979) (plaintiffs injured when defendant driver struck plaintiff's Volkswagen Minibus in the rear; the plaintiff sued driver, alleging negligent operation of his vehicle, and Volkswagenwerk AG, alleging defective design of door latch handle as the cause of their injuries.) The opinion cites Slater v. Mersereau, supra and Hawkes v. Goll, supra. The defendants were found jointly and severally liable for the whole amount of the plaintiff's damage because the injuries sustained as a result of the collision and plaintiffs' subsequent ejection when defective doors opened, were regarded as "indivisible."

Cases in other jurisdictions have also adopted the principle that where the cause of injury is indivisible, each tortfeasor will be held jointly and severally liable
for the damages sustained. See, e.g., Landers v. East Texas Salt Water Disposal, Inc., 151 Tex. 251, 248 S.W. 2d 731, 734 (1952) (defendant Salt Water Disposal Company and defendant oil company held jointly and severally liable for oil and salt water contamination separately released by defendants onto plaintiff's land. The court characterized defendant's acts as "independent tortious acts", stating: "Where tortious acts of two or more wrongdoers join to produce an indivisible injury, that is an injury which from its nature cannot be apportioned with reasonable certainty to the individual wrongdoers, all of the wrongdoers will be held jointly and severally liable for the entire damages and the injured party may proceed to judgment against any one separately or against all in one suit."

See, e.g. Kirby Lumber Corporation v. D.V. Walters, 277 S.W. 2d 796, aff'd 425 S.W. 2d 709 (1955) (automobile collision resulting from mud brought on highway by trucks owned by various defendants; defendants found jointly and severally liable). The same principle was applied in Burns v. T.S. Lamb, 312 S.W. 2d 730, (Tex. Civ. App. 1958) where defendant was held liable for entire damages where pollution of plaintiff's creek was caused by salt water escaping from the oil leaseholds of defendant and a third party.

298. 3 New York Jurisprudence 2d, Agency, at 137.


305. 2 Restatement of Torts 2d, Sec. 427b, Herman v. City of Buffalo, 214 N.Y. 316, 108 N.E. 451 (1898); Vogel v. City of New York, 92 N.Y. 10 (1883).


311. Fn. 305 supra.


3. Testimony of Donald Hemke, Assistant to Army General Counsel, Transcript of Army Appearance, July 7, 1980, at 44.

4. Fn. 2 supra, at 18.

5. Transcript of Hearings of the Senate Judiciary Committee and Subcommittee on Health and Scientific Research, June 6, 1980, at 101.

6. Testimony of Donald Hemke, fn. 3 supra, at 96, 98.


8. Letter from Col. R. Cox, fn. 12 infra, The designated function of the Board of Officers, authorized pursuant to Army Regulation No. 15-6 (August, 1977) was "to ascertain facts and to report them to the appointing authority to assist him in carrying out his official responsibilities." AR 15-06, at 1-1.


10. Id. The Record repositories searched were the Aberdeen Proving Ground, Md. (Chemical Corps.); Washington National Records Center, Suitland, Md.; National Personnel Records Center, St. Louis, Mo. and the Army archives at Dugway Proving Ground, Rock Island, Illinois and Dover, New Jersey.


12. Transcript of Army Appearance, at 162-163 (Testimony of Donald Pugh). The deadline originated from the Army "tasker", directing that an investigation be conducted. See Letter from Col. R. Cox to Commander, DARCOM, July 7, 1978.
13. Id. at 161 (Testimony of Andrew Anderson).
15. See pp. 74-75, supra.
16. See pp. 77-78, supra.
17. Testimony of Donald Pugh, Transcript of Army Appearance, at 263-264.
18. Testimony of Donald Hemke, Transcript of Army Appearance, at 48.
19. Id., at 46-47.
20. Exhibit 26B to Army Board of Officers Report, Conversation with Joseph Finster.
21. A "Major Palleford and Lt. Smith" and "Colonel Johnson and Major John Howard" were identified by Messrs. Finster and Arch, respectively, but no follow-up was indicated in the Report. Exhibits 26A and 26B to Army Board of Officers Report.
23. Testimony of Donald Hemke, Transcript of Army Appearance, at 40.
26. Testimony of Donald Pugh, Transcript of Army Appearance, at 190.
27. Exhibit 44 to Army Board of Officers Report, fn. 240 (Finding I) supra.
30. Id.
31. Id.
32. Transcript of Army Appearance, (Testimony of Donald Hemke, Andrew Anderson) at 38, 180.

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35. Army Board of Officers Report, at 22.


37. Id., at 16-17; Preface, at i.
FINDING III

1. Manhattan District History, Book VII, Feed Materials, at 1.2. ("Manhattan District History").


3. Manhattan District History, fn. 1 supra, at 1.1.

4. Interview with Roy Anderson, fn. 263 supra. Whether any health hazards are presented today from the ceramics products utilizing these glazes is a question deserving further attention.

5. Contract W/7401-eng 14. Linde operated the plant on a cost plus fixed fee basis.

6. Manhattan District History, fn. 1 supra, at 7.6. The Step III process was reactivated in November, 1947 and continued operation through 1949.

7. Manhattan District History, fn. 1 supra. Alterations and construction by MED at the Ceramics Plant were completed at a cost of $3,040,230 for the three step process. Id. at 7.7.

8. FUSRAP Report, at 126.

9. Id. at 127.


12. R. C. Heatherton, "Decontamination and Survey of Uranium Refining Plant", December 14, 1950, at 5. This AEC study analyzed the decontamination methods employed at Linde, the results, the equipment, labor and materials received, and the costs involved. Most of the decontamination was accomplished with sandblasting and some by an abrasive machine or with the use of flame. The decontamination effort, the report observed, was "not very noticeable in the reduction of the area average" radiation level, but was effective in eliminating "large amounts of radioactive materials which could contribute to [worker] overexposure." Id.

13. FUSRAP Report, at 140.

15. This institutional memory "lapse" may have been intentional. Roy Anderson, a former DOE official, reported that he informed William Thornton, a DOE official, of the existence of the Ceramics Plant wells in 1977, when DOE was reviewing contamination at formerly utilized MED/AEC sites. He was unaware whether any follow-up studies had been performed. See Fn. 263 (Finding I) supra. None were transmitted to this Task Force by DOE pursuant to the Task Force's FOIA request.


15b. Interview with Roy Anderson, fn. 263 (Finding I) supra. For example, the waste effluent analysis contained in a Progress Report prepared by Linde indicates that, during the week of August 21, 1945, the amount of U$_3$O$_8$ "lost" ranged between .21% and .84%. This amounted to between 12.2 and 48.9 pounds of uranium oxide for every 1 million gallons of liquid, based on an estimated daily average of 150,000 gallons of Step I liquors. Linde Progress Report, Waste Effluent Analysis, August 21-27, 1945; May 19-25, 1946 (showing slightly higher percentage of U$_3$O$_8$ lost.)

16. Letter from C. Rehm to Dr. J.F. Eversole, March 20, 1944.


18. Letter from C. Rehm to Capt. E. L. Van Horn, February 7, 1944; February 25, 1944.


24. Id.

25a. Fn. 38 infra.

25. Id.
26. Id. (emphasis supplied)

27. Id. (emphasis supplied)


29. Interview with Roy Anderson, fn. 263 (Finding I) supra.

30. Letter from A.R. Holmes to C.P. Murphy, December 17, 1943.

31. Letter from C.P. Murphy, Linde Ass't Plant Superintendent to A.R. Holmes, December 31, 1943.

32. MED contracted with Young's Trucking Company of Niagara Falls to haul the sludges.

33. Fn. 28 supra.

34. The code letter "X" was used by MED to denote uranium. Fn. 29 supra.

35. Memorandum from Capt. John L. Ferry to Tonawanda Area Engineer, April 10, 1944.

36. Id.

37. Id.


39. Id.

40. Id. (emphasis supplied)

41. Id.

42. Letter from A.R. Holmes to Capt. E.L. Van Horn, April 4, 1944.

43. Id.

44. Id.

45. Id.

46. Id.

47. Letter from Herbert Eickman, Linde Plant Engineer to Capt. E.L. Van Horn, August 7, 1944.

48. Id.

49. Letter from Capt. E.L. Van Horn to H. Wickman, August 10, 1948.
50. Letters from H. Wickman to Capt. E.L. Van Horn, August 12, 1944; August 17, 1944.

51. Letter from Capt. E.L. Van Horn to H. Wickman, August 18, 1944.

52. Letter from H. Wickman to Capt. E.L. Van Horn, October 18, 1944.


55. Letter from Capt. E.L. Van Horn to P.S. Abrams, Feb. 12, 1945. None of the documents obtained from DOE reflect whether this work was ever done.

56. Letter from C.P. Cullen to C.W. Rehm (Linde), March 16, 1945.

57. Id.

58. Id.


60. Id.

61. Id.

62. Id.

63. Id.

64. Id.


70. Id. The cost of drilling these wells was $1,200.00, which Linde noted would increase the cost of the black oxide produced by only .3 cents per pound.
71. Id. at 2.

72. Id.

73. Letter from Major E.L. Van Horn to C.W. Rehm, Jan. 25, 1946.


77. Id.

78. Id.

79. Id. (emphasis supplied)


82. Id.


84. Id.

85. Linde Inter-office Memorandum, Id.

86. Id.

87. Id.


89. Ultimately it was determined that the damage done to Linde equipment was not as great as had been feared. Although the seepage caused three blow-outs of junction boxes, these were repaired by the telephone company at no cost to Linde. Two sump pump motors burned out because of effluent seepage and had to be replaced. The effect of the seepage on the concrete in the Plant I tunnel, part of which was under the north wall of the Linde Research Laboratory, was a cause for concern, but no tangible evidence of deterioration had appeared, at least by 1948. A.R. Holmes, "Data on Ceramics Wells", May 26, 1948. It was subsequently determined that the seepage near the Research Laboratory was probably not from the Step I effluent, and that the sodium sulphate which pre-dominated in the effluent was apparently not causing the
previous "difficulty" in the utilities tunnel. Linde Inter-Office Memo from E.C. Kent to A.R. Holmes, June 2, 1948.

90. Letter from F.R. Dowling, Principal Assistant to Area Engineer, to F.L. Newman, Linde Ceramics Plant, May 1, 1946.

91. Id.


93. Id.

94. An AEC Progress Report for the week of March 22, 1951 reported that a visit had been made to Linde "to obtain information regarding problems and solutions in connection with the wells drilled for disposal of effluent from Step I operations of the Ceramics Plant." None of the 69,000 pages of documents provided by DOE indicate whether remedial actions were taken or advised subsequent to this visit.


96. Id.

97. Id.

98. Id.

99. Id.

100. Id.

101. Id.
FINDING IV


2. Id. at p. 4.

3. Id. at p. 18.


5. Bale, Dr. William F., "Progress Report," Division of Special Problems, January 5, 1944, University of Rochester, at p. 5.

6. Id. at p. 5.


10. Voeptlin, Carl and Hodge, Harold C., letter to The District Engineer, Manhattan District, Oak Ridge, Tenn., April 26, 1945, at p. 4.

11. Id. at p. 5.

12. Id. at p. 2.

13. Id. at p. 2.

14. Id. at p. 3.

15. Id. at p. 3.

16. Id. at p. 4.

17. Warren, Col. Stafford L., Chief, Medical Section, Manhattan District Engineer, memorandum to The Area Engineer, Madison Square Area, New York, June 4, 1945.

18. Id.

20. Id. at p. 6.


22. Ferry, Capt. John L., Medical Corps, memorandum on Breath Samples from the Linde Ceramics Plant, to the Area Engineer, Tonawanda, August 17, 1944.


33. Id. at p. 38.
34. *Id.* at p. 38.
1. New York Contamination Survey. The site originally surveyed included 10,000 acres, but protests by local residents resulted in a modification of the site plan. Army Ordnance, "History of Lake Ontario Ordnance Works, ("Army LOOW History"), Section II, at 13.

2. Parry Report, fn. 24 supra (Finding I).

3. Id; Army LOOW History, at 13.


5. Id. at 8. On a recent visit to the site, several of these barn-like structures were observed. They had not been demolished, a representative of the site's present owner, SCA, told the Task Force, because inside the wooden shell of the "barns" were four foot thick reinforced concrete walls. The cost of removing these buildings, which were built to contain explosives, was prohibitive.


9. Id.

10. Industrial Research Corporation, "Final Report: Appraisal of LOOW, March 3 1948" ("IRC Report"), at 3. The Army stated in its New York Contamination Survey, at 6, that the plant's capacity was 240,000 pounds per day and that only four of the six TNT lines were operative.


12. Id; IRC Report, at 4.


14. MED's use of the LOOW "Baker-Smith Area" for storage was originally on a "loan basis". Memorandum from J.H. King to Division Engineer, May 4, 1944.

15. Corps of Engineers, Real Estate Division Permit for Use, July 21, 1944.

16. Letter from W.H. Kelley (AEC) to Department of the Army, Corps of Engineers, April 9, 1948.

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AEC's expropriation of part of the LOOW site was well timed, for it obviated disposition of the land by the War Assets Administration. WAA had been experiencing some difficulty in disposing of this and other "white elephants".


22. FUSRAP Report, at 132.


31. Testimony of David Parry, fn. 24 supra, at 41-42.


34. Fn. 17 supra. Despite the dilution of the trade waters, the wastes discharged were still highly acidic, having a pH value of 3.6. *Id.*

35. Army LOOW History, Section 7, Exhibit B, "Sewage and Waste Disposal" (undated) (emphasis supplied)

36. *Id.*


38. Letter from D. Duggan, WAA Deputy Regional Director, Office of Real Property Disposal, to J. McCormack, Director, WAA Appraisal Division, Nov. 22, 1946.

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39. Letter from J.A. Thornton, Chief, Real Estate Division, Army Corps of Engineers to H.A. McKean, Chief, WAA Real Property Disposal, January 10, 1947.

40. War Assets Administration, Preliminary Inspection Report, October 17, 1947 (submitted by W. McNulty, ORPD Plant Maintenance Inspector).


42. Although the roads were by "order of Washington" opened to the public on March 15, 1948, the contaminated portions of the TNT plant (from 0 to H Streets) were not, as promised, fenced off at this time. Accordingly, the WAA officials then at the site urgently recommended that a patrol be initiated on the south side of Balmer Road to keep out unauthorized persons. See fn. 40 infra. It is not known whether this was done, whether the AEC subsequently erected a fence, or whether warning signs were posted on the land.

43. See, e.g., Letter from T. Peyton, WAA, to A. Marshall, March 17, 1948.

44. Letter from D. Hagerty to C. Colbert (Pittsburgh Mettalurgical Co.), May 12, 1947.

45. Fn. 78 infra.


48. Id. at III-2. The procedures for decontamination to standby status were set out in War Department Technical Bulletin TB-Eng-57, a copy of which the Task Force has been unable to obtain.


50. Id., at III-5, 6.

51. Id.

52. Id.

53. Id.

54. Id.
55. Id. at III-6.
56. Id. at III-6, 8.
57. Task Force Interview with Dr. James Kreuzer, Professor of Chemistry, Siena College, October 31, 1980.
58. IRC Report on LOOW, at III-7, 8.
59. Id.
60. Id.
61. Id.
62. Id.
63. Id.
64. Id. at II-6, 7.
65. Id.
66. Id., at III-33.
67. Id.
68. Id., at III-33, 34.
69. WAA, "Recommendation For Assignment of Real Property for Disposal", June 28, 1945.
70. WAA, "Real Property Classification-LOOW", January 13, 1947.
71. War Department, "Declaration of Surplus Real Property", January 13, 1947.
73. See Letters from WAA to Army Corps of Engineers, March 4, 1947; March 31, 1947; April 24, 1947 and June 10, 1947.
75. Decontamination Certificate for LOOW, undated.
76. Letter from D.S. Tooley, Chief, Army Corps of Engineers Real Estate Division, to WAA, dated August 8, 1947.
77. WAA Memorandum from H. Milnes to R. Whittet, July 21, 1947.

78. WAA Memorandum from H. Milnes to M. Godman, February 26, 1948.

79. On a portion of the LOOW site apparently utilized by CWS during the 1944-1946 period, buried phosgene cylinders were found, apparently much to the surprise of AEC surveyors. See pp. 74-75 infra.

80. Letter from T. Drumm, WAA Deputy Administrator, Office of Real Property Disposal, to WAA Regional Director, March 20, 1947. The War Department - WAA agreement provided that the owning agency would decontaminate its area to standby status and recommend whether additional decontamination work was required for the property to be safely used for other purposes. If additional decontamination work was required, it was agreed that the Army would perform it subject to WAA reimbursement. Only after this work was done would WAA accept custody and maintenance of and accountability for the surplus property. In LOOW's case, the land was accepted by WAA without the Army's recommendations as to the further decontamination work necessary. Letter from E. B. Gregory, WAA Administrator, to K. G. Royall, Under Secretary of War, April 19, 1946. This agreement was ultimately superseded.


83. Id. at 6.


85. Letter from W.E. Kelly (AEC) to Army Corps of Engineers, April 19, 1948; Letter from H. Milnes (WAA) to AEC, April 30, 1948.

86. Letter from W.E. Kelly, supra fn. 85. After conducting experiments, with unsuccessful results, concerning the storage in igloos of radioactive materials, AEC decided it did not want the "igloo area" north of Balmer Road, and returned these 999.48 acres to WAA. However, 1326.62 acres were, in accordance with Executive Order 9616, transferred to AEC on August 27, 1948. W. H. Doron, Reinspection Protection and Maintenance Report, August 18, 1949; Letter from J.S. Quidor (AEC) to A.J. Intermont (GSA), November 16, 1949. The igloo area later became part of Air Force Plant 38.
87. Letter from H. Milnes, fn. 85 supra.


89. WAA Memorandum from N.A. Odom to Director, Property Management Division, April 15, 1948.

90. Telegram from M. Codman (WAA) to Wilson, McLean (Farm Credit Administration), dated July 23, 1948.


92. GSA documents disclosed that the restrictive clause was first placed on the property in April 17, 1964 at the request of the Department of the Air Force, the agency holding the excessed Air Force Plant 68 property. Memorandum from P. Cirillo, GSA Regional Counsel, to Chief, GSA Real Property Division, June 11, 1965. The clause might have been inserted as a reaction to Town of Lewiston officials expressing interest, at an October, 1963 meeting, in using this parcel as a garbage disposal area. See Memorandum from W.A. Rowland, GSA, to File, October 22, 1963. The Air Force also owned the parcel of land known as Air Force Plant 38, located across from Air Force Plant 68 on the other side of Balmer Road. Perhaps the Air Force sought to discourage having a garbage dump as a neighbor.

93. SCA Blueprint, "SPCC Location of AEC Acid Lines" Sheet 5, revised November 1978.


95. Fn. 57 supra.

96. Fn. 82 supra.

97. Id.

98. There were indications in GSA documents of residual chemical contamination at the West Virginia Ordnance Works, the Plumbrook Ordnance Works and the Oklahoma Ordnance Works.


100. WAA, Excerpts of Minutes of Staff Meeting, July 9, 1947.

101. Letter from J. Loomis, Director, WAA Legal Division, to C.D. Williams, Director, WAA Property Management Division, September 4, 1946.
102. Id.
103. Id.

104. WAA Memorandum from R. Hendon to J.A. Forney, August 15, 1947.

105. Id.

106. WAA Memorandum from D. Strickler to J. McCormack, August 15, 1946.

107. WAA Memorandum from J. Loomis, Legal Director to P. Williams, Director, Urban and Rural Division, January 6, 1947; WAA Memorandum from J. Loomis to C.D. Williams, September 4, 1946.

108. Id.

109. Memorandum from J. Loomis to C.D. Williams, September 4, 1946.

110. Letter from D. McPherson (WAA) to Mr. W.D. Hilton, October 28, 1946, regarding sale of Gulf Ordnance Works to State of Mississippi. In addition, to protect the WAA against continuing liability, a deed form was devised advising all future purchasers of the possible contaminated condition of the property being sold. The diminution in property value and delay that this deed form would entail was, said the WAA, well worth the price because of the added protection it gave the government. WAA also noted that the public welfare demanded full and adequate notice of contamination. Letter from M. Godman, WAA, to C.H. McClaine, Director, Surplus Property Disposal, Farm Credit Administration, Jan. 19, 1948.
FINDING VI


4. Permit to Use, from War Department, U.S. Engineer Office, Madison Square Area, Station E., N.Y., N.Y., to Corps of Engineers, North Atlantic Division, N.Y., N.Y. May 4, 1944.


6. Id.


10. See fn. 5 supra at p. 3.


13. See fn. 11 supra, at p. 2.
14. See fn. 8 supra, at p. 17.


17. Memorandum from W.A. Taussig, area manager, Tonawanda Area, to Dr. B.S. Wolf, chief, medical division, Onydo, AEC, Nov. 3, 1947.


19. Memorandum from Dr. B.S. Wolf, Medical Division director, AEC, to F.M. Belmore, director, Production Division, May 2, 1949, at p. 2.


21. See fn. 19 supra at p. 2.


27. Memorandum from R.J. Smith, Jr., chief, Miscellaneous Operations Area, Production Division, to the files, March 17, 1952.

28. Letter from W.B. Harris, chief, Industrial Hygiene Branch, Health & Safety Division, to R.J. Smith, Jr., chief, Operations Branch, April 11, 1951.
29. Memorandum from F.M. Belmore, director, Production Division, to D.C. Moore, director, Engineering and Construction Division, April 9, 1952.

30. See fn. 27 supra.

31. Letter from F.M. Belmore, director, Production Division, NYOO, to C.L. Karl, area manager, Fernald Area, Cincinnati, Ohio, August 8, 1952.


34. Memorandum from Mr. Seebald, Lockport District Office, NYS Department of Health, to Dr. Thompson, NYSDoH, Aug. 11, 1960.


36. Id.


38. See fn. 5 supra at p. 5.

39. Id.

40. Id. at Fig. 3.


42. Memorandum from J.S. Maffucci, chief, Tonawanda Sub-office, to R.J. Smith, Jr., asst. director, Production Division, NYOO, weekly progress report April 20-25, 1953, April 27, 1953.

44. Id. at p. 4.
45. Id. at p. 3.
46. Id. at p. 4.

47. 1) "Location and Delineation of Radioactivity-Mathieson-Navy Area," Industrial Hygiene Branch, Health & Safety Laboratory, AEC, November 2, 1954;


48. Id. 1), 2), 3), and Map--Plot Plan of Contaminated Areas, by Hooker Electro-chemical Co., Niagara Falls, Sept. 1, 1954.


51. See fn. 47. 2) supra, and 47. 3) supra.

52. See fn. 47. 3) supra, at Figure 4.


54. Memorandum from H.J. Hershman, chief, Tonawanda Sub-office, to R.J. Smith, Jr., asst. director, Production Division, Weekly Report, March 2-6, March 9, 1953.

55. Memorandum from J.A. Maffucci, chief, Tonawanda Sub-office, to R.J. Smith, asst. director, Production Division, NY00, April 23, 1953.

56. Id. at attachment "Harry Betts."

58. Id. at p. 4.
60. Id. at p. 2.
61. Id. at p. 2.
62. Id. at p. 4.
65. Id. at p. 1.
66. Id. at p. 6.
67. Id. at p. 5.
68. Id. at p. 6.
69. The geologists conducted a similar study of the Haist Property in Tonawanda, where residues from domestic ore were dumped prior to 1943. These wastes were simply dumped on the ground, but the analysts similarly found it unlikely that groundwater would have been contaminated through the impermeable clay soil. They did, however, recognize the possibility that the surface drainage pattern could carry contamination into the nearby Niagara River and that it could conceivably reach the intakes for public water supplies in Tonawanda, North Tonawanda and Lockport. The recommendation was for periodic monitoring of the runoff to determine if that was in fact taking place.
71. See fn. 42 supra, at p. 1.
72. See fn. 70 supra, at p. 28.
73. See fn. 70 supra, at p. 27.

76. See fn. 47. 1) at Figures 1-4.

77. See fn. 74 supra.

78. See fn. 47. 1) at p. 6.

79. Id. at p. 6.

80. See fn. 35 supra.

81. See fn. 74 supra.

82. See fn. 75 supra, at p. 4.

83. See fn. 47. 1) supra at Table 1.


85. See fn. 47. 1) supra, at p. 1.


87. See fn. 47. 2) supra, at attached notes, p. 2.


89. See fn. 47. 2) supra, at Background p. 3.


91. "Modeltown Site Picked by AEC for Secret Work," article in Niagara Falls Gazette, not dated, but contemporaneous with the AEC announcement.

92. Letter from Merrill Eisenbud, manager, Health and Safety Laboratory, AEC, to Dr. Herman E. Hilleboe, Commissioner of Health, State Health Department, August 9, 1959.
93. Id.

94. Id.

95. See fn. 7 supra.

96. See fn. 92 supra.

97. Letter from Sherwood Davies, State Health Department, to Dr. Hill, Lockport District, State Health Department, Sept. 15, 1959.


100. Letter from Sherwood Davies, P. E., director, Radiological Health Services, NYSDOH, to Al Breslin, director, Division of Environmental Sciences, March 13, 1964.

101. Memorandum from Mr. Bernard Heald, State Health Department, to Mr. Blanchard, State Health Department, April 16, 1965.

102. Id.

103. See fn. 34 supra.

104. Letter from Sherwood Davies, P. E., chief, Radiological Health Section, NYSDOH, to William Harris, director, Division of Environmental Sciences, U.S.A.E.C., August 16, 1960.

105. Letter from W.B. Harris, director, Environmental Sciences Division, U.S.A.E.C., to Sherwood Davies, chief, Radiological Health Section, NYSDOH, Sept. 1, 1960.

106. See fn. 8 supra, at p. 24–25.


108. See fn. 48. 3) supra, at p. 30.

109. Id. at p. 17.
110. Whatever the cost and difficulty of decontaminating the site today, it is probable that money and effort could have been saved if AEC had followed the advice in 1955 of S.R. Sapirie, manager of Oak Ridge Operations. Sapirie noted then that contamination was spreading outside Federal boundaries, but asserted that the site could be cleaned up at a reasonable cost. He said, "leaching and surface drainage have apparently resulted in the spread of some measurable activity to some distance outside the reservation limits... While obviously many problems would be encountered in removing materials already stored and in cleaning up the area, it is felt that this could be accomplished with reasonable economy in view of the limited area presently involved." (Letter from Sapirie, to E.J. Bloch, director, Division of Production, AEC, Washington, June 2, 1955.) [See Appendix]
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CONFFDENTIAL
SECURITY INFORMATION

SOLVENT PURIFICATION SYSTEM

P-1 Recovery Stills (cont'd)

The chief precaution is to keep the condenser temperature above 85°C. to prevent solidification of the P-1 in the condenser. (P-1 melts at 77°C.). The P-1 is handled in the molten state throughout the cycle, being transported to the point of consumption (the Step 11 make-up tanks) in steam-jacketed buggies.

The sludge is drawn off from the still into drums while molten. As this material is valueless, it is carted to a dump and discarded. It was considered good practice to bury this material as it might contain appreciable amounts of P-1 which has the same toxic properties as aniline. Otherwise children playing around the dump might be affected.

The area around the still must be well ventilated and careful watch kept of the operating personnel for signs of toxic poisoning. From this standpoint, this area is the most dangerous in the plant. The equipment must be kept in good condition to prevent fumes in the air and good housekeeping is imperative.

Water Content of Step 11 Distillate

If the evaporators equipped with steam coils are being used, constant watch must be kept that coil failure does not contaminate the distillate with water.

As has been discussed previously under the Step 11 Reaction, the optimum water content of the Step 11 filtrate is 2.0 - 2.5%. It may at times run as high as 3.5% but this is abnormal. The Step 11 distillate will normally run about 1% higher in water content than that of the evaporator feed. If the difference is greater, checks should be made immediately of all points where water may enter the system. This point is especially important and means a continual watch on equipment. It is important to keep a close check on 5-5, 6, hasteloy coils for water leakage should Step 2 filtrate water content rise.

If the Pfaudler evaporators are being used, the danger of water contamination is greatly decreased.

New Acid Addition

Fresh acetic acid is always introduced into the system through the distillate tank. The same procedure is followed as described under Step 1 distillation and the same precautions must be taken.

Step 11 Evaporator Feed

The Step 11 evaporator feed is normally the wash from the P-2A Oliver and the recovered acetic acid from the rotary drier which recovers the acid from the P-21 cake. This feed contains less than half the amount of residues present in the filtrate itself. This reduced residue content greatly reduces the amount of sludge in the evaporator which, in turn, reduces the load on the P-1 recovery still.
TECHNICAL MONOGRAPH

MANUFACTURE OF

CC-2 AND XCC-3

AT THE

NIAGARA FALLS CHEMICAL CORPS PLANT

S-1 = HAC
R-1 = Aniline
R-3 = Caustic
R-5 = Chlorine
R-10 = NaOH
R-8 = Vler

ORIGINALLY WRITTEN BY E.W. RIDEOUT
E.I. DU PONT de NEMOURS (1951)

REVISED BY F.T. CLOTKA
HOOKER ELECTROCHEMICAL CO. (1953)
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF, CHEMICAL CORPS
WASHINGTON 25, D. C.

DISPOSITION OF
CHEMICAL CORPS ITEMS

This publication supersedes pamphlet entitled
"Disposition of CWS Items", dated 15 July 1946

15 SEPTEMBER 1948

EXHIBIT 2
In Reply Refer To: 15 September 1948

CMLWD-8

SUBJECT: Disposition of Chemical Corps Items

TO : Commanding General, Army Chemical Center
    Attn: Chief, Eastern Chemical Depot
    Commanding Officer, Camp Detrick
    Commanding Officer, Western Chemical Center
    Attn: Chief, Deseret Chemical Depot
    Commanding Officer, Pine Bluff Arsenal
    Attn: Chief, Midwest Chemical Depot
    Chemical Supply Officers, Atlanta, Columbus, San Antonio,
    Schenectady, Utah General Distribution Depots, New Cumberland
    and Memphis General Depots, U. S. Army

1. This letter and lists supersedes letter this office CWSWA, Subject,
   "Disposition of Chemical Corps Items," dated 15 July 1946.

2. a. Sections I, II, and III following this letter are the latest lists of
    obsolete, unauthorized and authorized Chemical Corps items of storage and issue.
    Authorized items are those storage items so designated to include all items which
    are authorized for issue for troop supply requirement. Unauthorized items are
    storage items which may be designated as standard or experimental, but which are
    not authorized for issue for troop supply and which will be disposed of in accordance
    with paragraph 3 a, below.

    b. Section IV is a list of items of other government services which may,
       in some instances, be stored at Chemical Corps Depots.

    c. Section V is a list of bulk components authorized for storage at
       Chemical Corps Depots as reserve stock. Components not included in this list will
       be referred to the Chief, Chemical Corps for disposition instructions.

3. The following action shall be taken at each Chemical Corps Depot and
   Chemical Section of General Distribution and General Depots.

   a. All quantities of obsolete and unauthorized items (Sections I and II)
      shall be disposed of at this time, using one of the following methods, except where
      specific notation for other action is indicated on the item concerned:

      (1) Items unserviceable (worse than 0-3 condition) or otherwise not
          useful in the civilian economy in present form, shall be turned
          over to the local salvage officer for disposition in accordance
          with existing regulations and/or directives issued by the Chief,
          Chemical Corps. (References: TM 38-419, March 1947;
          TM 38-505, June 1947; PDB Directive No. 94, 1 September 1948,
          or subsequent revisions thereto).

EXHIBIT 2
(2) Items which are useful in the civilian economy will be reported through channels for disposition in accordance with current procedure for the disposition of excess and surplus property (other than real property).

(3) Chemical Corps Ammunition and Toxic Chemical Agents shall be disposed of in accordance with instructions from the Chief, Chemical Corps. Attention is invited to Section VI of this pamphlet, titled "Demilitarization of Chemical Agents, Munitions and Other Materials," and PDB Directive No. 82, 10 April 1948, subject, "Demilitarization Analysis Report; PDB Directive No. 83, 17 May 1948, subject, "Disposition of Chemical Ammunition and Toxic Contaminated Material Requiring Demilitarization before Disposal."

(4) Components which are packaged separately shall be disposed of in the same manner as the end items to which they apply.

b. Quantities of "Non-Chemical Corps Items" (Section IV) shall be reported directly to the Department of the Army technical service concerned (through supply channels) for disposition instructions. Department of the Navy items shall be reported to this office, attention, Supply and Procurement Division, for disposition instructions.

c. Items on hand in depot stocks which do not appear on any of the five lists (Sections I, II, III, IV and V) and for which disposition instructions have not been furnished, shall be reported to this office, attention, Property Disposition Branch. Sufficient descriptive information shall be furnished to enable this office to identify the material.

4. Each Chemical Corps Depot and Chemical Section of General Distribution and General Depots shall advise all posts, camps and stations served to take the following action with respect to Sections I, II and III:

a. All quantities of obsolete and unauthorized items (Sections I and II) shall be disposed of at the post, camp or station, in accordance with paragraph 3 a (except where specific notation for other action is indicated on the item concerned). Quantities of toxic chemical agents and munitions which cannot be destroyed locally shall be referred to the Chief, Chemical Corps, through the issuing Chemical Corps Depot.

b. Authorized items (Section III) shall be covered by individual letter, except certain items which, if unserviceable, worse than 0-3 condition, may be disposed of at the post, camp or station, without reference to the issuing Chemical Corps Depot. These items have been annotated with the symbol "Us."  

5. Section VI is a tabulation of methods of destruction to be employed for such quantities of items listed as may be surplus or unserviceable. This tabulation does not, in itself, constitute authority for destruction of the items listed, but is merely intended as a guide for the use of installation personnel in determining
the manner in which destruction is to be accomplished after such decision has
been arrived at. Ordnance Safety Manual, CO Form 7224, dated 3 May 1945, and
TM 9-1900, "Ammunition, General" are sources for further details in connection
with the destruction of Chemical Corps ammunition.

6. Sufficient additional copies of this letter and lists are being furnished to
allow for distribution of three (3) copies to each post, camp, station and air field
served. It is suggested that these be forwarded to posts, camps, stations and air
fields by indorsement of the supplying depot.

7. Instructions which are in conflict with this letter shall be referred to
this office, attention, Supply and Procurement Division, for clarification.

E. C. WALLINGTON
Colonel, Cmfc
Acting Chief, Chemical Corps
Stock No.  Nomenclature
257131  -  Igniter, (WP) E4R8 (explosive type, incendiary gasoline tank)
257136  -  Igniter, (Na) E4R7 (explosive type, incendiary gasoline tank)
257137  -  Igniter, (WP) E4R7 (explosive type, incendiary gasoline tank)
257116  -  Igniter, explosive type, incendiary gasoline tank (Na) E5
257115  -  Igniter, explosive type, incendiary gasoline tank (WP) E5

535116  -  Impregnate I (XXCC4)
535117  -  Impregnate (XXCC5)

257310  -  Incendiary, pocket, M1

445120  -  Kit, cylinder replacement, for portable flamethrower, M1A1
635102  -  Kit, mixing and transfer, thickened fuel, E2
519127  -  Kit, repair, gas mask, non-combatant, M9
445303  -  Kit, service, mechanized flame thrower, E5R1-5R1
559110  -  Kit, testing vesicant sensitivity, M4
635101  -  Kit, tool, bomb venting, E1

567120  -  Laboratory, field, Chemical Corps, M2
567150  -  Laboratory, field, petroleum
None  -  Launcher, rocket, 7.2-inch, E2
553410  -  Leggins, horse, M1 (set of 4)
553411  -  Leggins, horse, E1R74 (set of 4)

414688  -  Man pack kit, 4.2-inch chemical mortar barrel, E13
445121  -  Manifold, portable flamethrower, E4
511508  -  Mask, gas, assault, E6-3-7
512315  -  Mask, gas, diaphragm, M3-IXA1-IVA1
512318  -  Mask, gas, diaphragm, M3A1-IXA1-IVA1
512321  -  Mask, gas, diaphragm, M3A1-9A2-IVA1
512305  -  Mask, gas, diaphragm, M3A1 - all purpose - MI-III-A1
512720  -  Mask, gas, diaphragm, lightweight, M3A2-10A1-6
512322  -  Mask, gas, diaphragm, ZI, M3

515115  -  Mask, gas, non-combatant, M1A1-I-I
None  -  Mask, gas, non-combatant, M1A2-I-I

These impregnates are apparently unsalable (except possibly as salvage) since the chemical composition remains classified. Excess quantities are expendable and may be used for decontamination activities, or sold as salvage, or destroyed by burning at least three (3) feet underground.

Report excess quantities to Chief, Chemical Corps through issuing Chemical Corps Depot for disposition instructions.

- 7 -

EXHIBIT 2
IMPREGNITE, CC-2
IMPREGNITE, XXCC-3
IMPREGNITE, XXCC-4
IMPREGNITE, XXCC-5
IMPREGNITE, S
RH-195

DESCRIPTION: These items are in the form of granulated material or powder, containing available chlorine, and varying in color from white to cream.

RECOMMENDATION FOR DEMILITARIZATION: The chemical structure and method of manufacture of the impregnites is classified, but no violation of security is involved by divulging that the compound is a high-chlorine content material. The War Assets Administration declines to handle this matter under these restrictions, and possible sale as salvage is improbable. Therefore, surplus quantities should be destroyed or abandoned in the interest of military security in the event sale is not affected.

COMPONENTS SUITABLE FOR CIVILIAN USE: None

METHOD OF DEMILITARIZATION: a. One method of disposal is to scatter the material on the surface of ground which will not be used for agricultural purposes. Scattering should be done on a rainy day, to prevent the powder blowing away. The action of a few rains will effectively remove the impregnite.

b. Disposal by burial is feasible for these items. The pit should be deep enough so that the top layer of material is not less than 3 feet below the surface of the ground. The disposal site must be selected at a location which takes sources of drinking water supply and drainage systems into consideration. The post engineer should be consulted in locating the site and details of the method to be employed. During approximately 6 months, normal rains in most localities will suffice to remove the impregnite.

c. Small quantities of the impregnites may be disposed of by burning on the surface of the ground, using wood as the combustible material. When over 200 pounds are involved, the pit burning method (see page 9) is preferable. Since chlorine is released when these impregnites are burned, the operation should be conducted on a day favorable for rapid disposal of the gas. A safety zone 300 yards downwind and 200 yards wide is adequate.

d. These impregnites are useful for decontamination activities involving the blister gases, and gradual disposal may be effected in this manner.

e. Since many disposal methods for chemical agents and munitions involve the use of bleach or other decontaminating agent, the use of impregnite in lieu thereof provides a feasible means of disposal.

PROTECTIVE EQUIPMENT REQUIRED: Gas masks should be worn by all personnel engaged in disposal operations.

EXHIBIT 2
MAXIMUM TO BE DEMILITARIZED AT ONE TIME:

By scattering on ground .................. 500 pounds per acre
By burning on surface of ground ........ 200 pounds
By burning in a pit ....................... 1000 pounds
By burial ................................. Dependent on location

EXHIBIT 2
March 29, 1944

Dear Captain Van Horn:

This refers to the conversations regarding disposal of effluent liquors from Step I into the sanitary sewer of the Town of Tonawanda.

Because of the difficulty experienced at the filtration plant, we are informed that notice will be served on us by the New York State Board of Health to discontinue emptying this waste material into the sanitary sewer.

When this notice is given to us there will be two possible courses of action:

1. Discharge this material into a storm sewer, then to the Two-Mile Creek, and finally the Niagara River.

2. Discharge this material into a well on our Tonawanda Factory property from which water was formerly taken at the rate of 1,000 gallons per minute. It is estimated that the effluent liquors from Step I total 150,000 gallons each twenty-four hours. The well water is unfit for use.

Plan 1 is objectionable because of probable future complications in the event of claims of contamination against us. Plan 2 is favored because our Law Department advises that it is considered impossible to determine the course of subterranean streams and, therefore, the responsibility for any contamination could not be fixed. Our Law Department recommends that this method of disposal be followed. We understand that local representatives of the New York State Board of Health and of the Town of Tonawanda Filtration Plant have given the opinion that the effluent liquors are not detrimental to the public health. We also are told that Captain Ferry has expressed the opinion that there is nothing in the effluent liquors detrimental to public health.

EXHIBIT 3
We would, therefore, like your approval to proceed under Plan 2.

Very truly yours,

THE LINDE AIR PRODUCTS COMPANY

[Signature]

Asst. Superintendent

AR Holmes: DEB
Subject: Disposal of Main Effluent from Linde Ceramics Plant

To: The Area Engineer, Tonawanda Area, Tonawanda, N.Y.

1. Draining the main effluent from the Linde Ceramics Plant into the storm sewer and in turn into the creek near the plant would present no hazard from the standpoint of the material contained in the 150,000 gal. discharged daily.

2. The high PH and carbonate content of the effluent even diluted 10 to 1 by the flow of the creek might be objected to by the local health authorities. In this instance, however, it is understood that the authorities consider the creek so heavily contaminated at present that no objection is raised to adding the material in question to it.

For the District Engineer:

SPECIAL REVIEW
FINAL DETERMINATION
UNCLASSIFIED

By: [Signature]
Date: [Date]

Cc: Mr. A. H. Holmes, Linde Ceramics Plant

EXHIBIT 4
The Linde Air Products Company:
Ceramics Plant
E. Park Drive and Woodward Ave.
Tonawanda, N. Y.

Attention: Mr. A. R. Holmes.

Gentlemen:

Receipt of your letter of 29 and 31 March 1944, concerning disposal of filtrate from Step I is acknowledged.

This office interposes no objection to the use of either of the two schemes for disposal of this material and leaves to the discretion of the contractor the selection of the method of disposal most satisfactory to all concerned.

Should you decide to follow plan one as outlined in your letter of 29 March, we would like to have from you an opinion as to the detrimental effects, if any, to persons or vegetation coming in contact with the diluted liquors in two mile creek.

On the other hand should you elect to discharge the effluent into a well on the Linde property, we would like to make sure that you have ascertained that:

a. The well will take the discharge at the required rate over a long period of time.

b. That contact of the liquors with the well water and surrounding underlying strata will not cause a chemical reaction precipitating solids which might eventually cause plugging of the well.

c. Introduction of the effluent into the underground stream will not to the best of your knowledge affect the use of the water in other plants or installations for normal purposes. (Our attitude on this is that even though we might not be liable from a legal standpoint, we might from an ethical point of view be doing something which would effect the production of other war plants, and could be severely
We would also like some assurance that the Government will not under the terms of the contract be required at some later date to remove any effluent which may remain in the well or be required to restore the well to its original condition.

Having given due consideration to the above mentioned points and furnished us with the aforementioned assurances in connection with this problem, you may proceed with whatever construction work is necessary to dispose of the liquors. Reimbursement for this work will be made in the usual manner.

Very truly yours,

E. L. VAN HORN
Captain, Corps of Engineers,
Area Engineer.
April 4, 1944

Captain S. L. Van Horn
Area Engineer
P.O. Box 95
Kensmore, New York

Dear Captain Van Horn:

Replying to your April 3, 1944 letter, we are pleased to receive your approval of the plans submitted covering the disposal of Step I material.

We have decided not to follow Plan No. 1 for reasons given in our March 29, 1944 conference and also because our Law Department advises that to do so would be in violation of existing New York State regulations.

We propose to follow Plan No. 2 which involves the discharge of the material into a well on our Tonawanda Factory property. The use of water from this well has been discontinued because the water is unsatisfactory.

We are advising as follows concerning the specific points raised in your communications:

a. Based on data submitted to us by our Tonawanda Factory, we have every reason to believe that the well will take the discharge at the required rate but, of course, we have no means of knowing that it will continue to do so over a long period of time. Our conclusions that the material can be properly disposed of in the well are based on the fact that in testing fire prevention equipment at our Tonawanda Factory, four 600 gallon per minute streams—a total of 2,400 gallons per minute—were discharged into the well without any difficulty. Since we have a total of approximately 150,000 gallons per day to be discharged into the well, we believe that there will be no difficulty in disposing of the material on this basis.

b. Basing our conclusions on information supplied by our Tonawanda Factory and information obtained from interested groups in our organization, we have no reason to believe that contacts of the liquid with the well water

EXHIBIT 6
and underlying strata will cause a chemical reaction precipitating solids which might eventually cause plugging of the well.

c. Our March 29, 1944 letter and opinions expressed during the conversation on that date indicate that our Law Department had ruled that it would be extremely difficult to determine the course of subterranean streams and, therefore, no one could fix the responsibility for contamination of such streams. A case in point is the fouling of our wells by someone else in the vicinity—we assured it to be the Dunlop Tire Company—but we have no recourse other than to discontinue the use of the wells. If there were any definite means of determining the effect of this discharge into the water basin, we would be glad to do so but it is not thought that any final conclusions could follow a survey of the situation. Certainly we would not take any action which would interfere with the production of other war plants if we could obtain any knowledge that this would be the effect.

In view of the difficulty that would be experienced by the Government in attempting to remove any effluent which might remain in the well on the expiration of the contract, it would be unreasonable for our Company to expect the Government to restore the well to its original condition because the water from the well is useless for our purposes and we have no plans for its future use when instituting the practice of discharging the filtrates from Step I into it.

Kindly advise as soon as possible if we shall proceed with Plan No. 2.

Very truly yours,

THE LINDE AIR PRODUCTS COMPANY

[Signature]
Asst. Superintendent

[Signature]

EXHIBIT 6
March 16, 1945

Mr. C. W. Rehm
Mr. B. W. Morgan
Mr. W. S. Roberts
Mr. J. Murphy
Mr. L. Oliphant

Dear Mr. Rehm:

This is to confirm my conversation with you and Mr. F. Neuman concerning the Ceramics waste process water line which is now emptying into two deep wells on the South side of the Compressor Room on Plant #1 property. During the past 10 days very strong ammonia laden vapors from the waste water have been rising from the wells and blowing into the Compressor Room. This condition was reported to Mr. E. Abrams and he directed the work of flushing out the wells. This flushing out process has been carried out three times during the past 10 days. In spite of this work on the wells, they are continuing to discharge ammonia laden vapors. We are concerned because these vapors are corrosive and if this condition is allowed to continue, switch boards and other equipment in the Compressor Room will be corroded and certain equipment on the switch board may fail to operate when the need arises.

We requested you to make arrangements to discontinue the use of our deep wells for receiving this waste water. We further requested that the arrangements to discontinue the use of our wells be put into effect by April 5th.

We regret that it is necessary for us to request you to discontinue emptying your waste water in our deep wells but the possible damage to equipment makes it necessary. There is a further reason; the ammonia laden vapors have been so strong on a number of occasions that our Shift Engineer and the operators have been unable to stay continuously on duty in the Compressor Room.

Very truly yours,

THE LINDE AIR PRODUCTS COMPANY

C. P. Cullen

Note: Informing of the decision of A. R. Holmes, we advise that Capt. Van Horn has authorized the digging of one 6" well, approximately 177' deep. Future plans on disposal of waste material will be based on the result of this drilling.
Dear Captain Van Horn:

As Mr. Abrams informed you on Wednesday, the wells on Plant No. 1, property being used to receive the effluent from Step I have again become plugged. At present the wells are cleaned by an air lift and it takes 4 to 6 days to accomplish this. They are then good for about 3 to 4 weeks. It is feared, however, that most of the water put into the wells is pumped out again by the air lift and not much stays in the ground. The cleaning period has been gradually becoming longer.

During the cleaning period the water discharges into the Plant No. 1 storm sewer systen. This sewer empties into an open ditch in the Public Park across the street which runs about 100 yards to Two Mile Creek. The creek also runs through the park. (This results in a hazardous condition, since these alkaline liquors run through open waterways where users of the park can easily come into contact with them. It is aggravated by the fact that in the summer time children are often seen washing in these waters in search of lost golf balls.)

In the past, in a few cases of emergency, the effluent has been dumped into the ditch running just north and outside of the Ceramics Plant fence. This method of disposal is equally unsatisfactory as the ditch also discharges into Two Mile Creek. Before doing so, these hot, alkaline liquors run for about a quarter of a mile over unfenced property.

It seems that there are four methods for the disposal of the Step I effluent:

1. They can be discharged to the sanitary sewer. This was the first method used, but had to be abandoned because the alkalinity of the liquors killed the bacteria in the sewer. Treatment plant soon after being mixed with the rest of the sewage from this area. This method, therefore, cannot be used.
2. They can be run into the ditch north of the plant with treatment and thus into Two Mile Creek. For reasons of public health and safety as outlined above this method cannot be used.

3. The liquors could be neutralised before putting them in the ditch. Experiments have shown that at 150% of rated capacity this would require approximately 25,000 lbs. of sulfuric acid per day. The operating costs would, therefore, be about $200.00 per day. A line would have to be run to Two Mile Creek as the liquors would be too hot for the open ditch. This would cost approximately $2,000.

4. New wells could be dug on the Ceramics Plant property. The cause for the failure of the present wells cannot be accurately described. It is possible, however, that the sodium carbonate and sulfate in the effluent reacts with the lime in the subterranean waters and causes a deposition of limestone and gypsum. As this is likely to occur in the new wells, it may be necessary to drill new wells periodically. This is common practice where wells are used for the disposal of waste waters.

The following quotations have been obtained on drilling new wells:

An eight inch hole to a depth of 130 feet would cost $750 complete with casing. This would be the same as the wells on the Plant No. 1 property. There is no guarantee of hitting water.

A better hole would probably be obtained by going down 500 feet into the Niagara limestone. The cost would be $2,050.

Below this are Clinton and Medina gas sands which could not be used. The next good strata would be the Potsdam sand which lies under the Trenton sand and is at a level of 3,100 feet. The cost of reaching this formation would be $17,225. The drilling contractor informs us that a number of people in this vicinity are using this strata for discarding wastes and it is the only one which he would guarantee.

In view of the above prices, it is our opinion that two 130 foot holes should be dug immediately with the prospect of additional holes when required.

May we have your approval of this proposal.

Very truly yours,

THE LINDE AIR PRODUCTS COMPANY
CERAMICS PLANT

[Signature]
Superintendent

cc. Mr. S. P. Murphy
Mr. E. C. K. Hayward

EXHIBIT 8
MEMORANDUM

TO: Mr. P. B. Pew.
FROM: Mr. A. R. Holmes

October 17, 1945

Ch. 12

Dear Mr. Pew:

As per our conversation, one of the wells at Ceramics has backed up to the surface of the plant yard and has therefore been temporarily abandoned. One well is still in service but is partially plugged up so that approximately 80% of the Step I effluent is being diverted to the open ditch which leads from the north end of the Ceramics Plant to Two Mile Creek. As you know, the Army has resisted our plans to dig more wells or spend additional money for pressure parting to make the well method of disposal more efficient.

The effluent can not be diverted to the sanitary sewer for as you know we have been forbidden to use the sewer for this purpose as a result of our experience which closed down the sewerage disposal plant in the spring of 1944. We are unwilling to divert this hot lye water effluent to Two Mile Creek because of the liabilities involved, although the Army has requested that we do so in spite of their unwillingness to write us a letter ordering us to put the effluent in the creek and absolving us from any legal action criminal or civil which might result.

We would be willing to divert the effluent to the creek if it were properly neutralized so that it would be non-injurious to humans. This method would be costly as shown by the following data:

Total effluent is 150,000 gallons per day. PH of effluent liquors is approximately 11. To lower the PH from 11 to 9 which should be safe shall take 11 1/2 tons of 100% sulfuric acid per day. At $17 per ton for sulfuric acid this would cost $195 a day or $5,850 a month.

To completely neutralize the liquors to PH of 7 would take 14 1/2 tons of sulfuric acid per day for a cost of $246 per day or $7,390 per month.

A mixing tank and mixing control equipment would be necessary which would cost approximately $1,500.

A tile pipe line to the creek would be required which would cost approximately $2,500.

EXHIBIT 9
In view of the costs for the above method, we believe our present method of disposal by the wells is the most economical as each well costs approximately $700 complete. Two wells have already been drilled in the Ceramics yard and one has been abandoned as mentioned above. The old well at the boiler house in Plant I is entirely plugged and has been abandoned. We recommend either of the two following courses to be undertaken at once:

1. Drill 3 more wells immediately and if necessary drill additional wells when needed or

2. Drill 2 more wells and have them sealed in the cap rock and the high pressure pump installed so that the pressure parting method can be used.

We wish to emphasize that 30% of the effluent liquor is now flowing through an open ditch to Two Mile Creek. This ditch is unprotected by any fence and would undoubtedly injure any one who fell into it. Down stream from the point where this ditch enters Two Mile Creek, the creek flows through a public park and golf course.

Very truly yours,

A. R. Holmes

EXHIBIT 9
Subject: Maximum Allowable Concentration of Insoluble T Compounds in Factory Air

To: The Area Engineer, Madison Square Area, New York, N.Y.

1. This office is in receipt of a special report on maximum allowable concentration of certain T compounds in factory air, submitted by Dr. Carl Voegtlin and Dr. Harold Hodge on 21 February 1945. This report recommends that the maximum allowable concentration for chronic exposure to high-grade ore, T₃O₈, TO₂, and TF₄, be raised from 150 micrograms per cubic meter to 500 micrograms per cubic meter.

2. This recommendation is based on the results of exposure of animals to these substances, and careful observation of a large group of persons working in industry with these materials during the past two years.

3. Therefore, in the opinion of this office, the maximum allowable concentration for exposure to high-grade ore, T₃O₈, TO₂, and TF₄, should be increased to 500 micrograms per cubic meter. In view of the extreme difficulty in maintaining concentrations of 150 micrograms per cubic meter in industry, it is felt that such a change will be of definite benefit in expediting the war effort.

4. It is recommended that this change in the maximum allowable concentration be transmitted to the contractors under your supervision.

5. It is requested that this office be notified by indorsement of the action taken upon this recommendation.

For the District Engineer:

Stafford L. Warren
STAFFORD L. WARREN
Colonel, M.C.
Chief, Medical Section

EXHIBIT 10
28 September 1943.

SPECIAL REREVIEW
FINAL DETERMINATION
UNCLASSIFIED

By: K.W. Wallen

Date: 10/1/43

EIDM T-1

Linde Air Products Company,
Tonawanda, New York.

Attention: Mr. T. J. Coleman.

Gentlemen:

There is inclosed for your information and compliance a copy of recommendations tentatively proposed for use in processing valuable native materials and African ores having up to 20% content of MX.

We are informed by the Medical Section of the Manhattan District that these recommendations have been reviewed and approved by Dr. A. G. Cranch. Should you have any further recommendations or suggestions in connection with the handling of these materials it is desired that they be transmitted to this office as soon as possible.

It is further requested that you furnish this office a brief report containing the following information:

a. Location of the area where you propose to store the African ore together with a description of the type of wall you plan to use.

b. Location and type of hood to be used at the point the ore is dumped onto the conveyor.

c. Size, location, and type of construction to be employed in the sampling room.

1 Incl.:
Cpy No. 2, Ser. B,
"Recommendations for Operating Procedure at Linde"-

Very truly yours,

E. L. VAN HORN

E. L. VAN HORN,
Captain, Corps of Engineers,
Area Engineer.

EXHIBIT 11
RECOMMENDATIONS FOR OPERATING PROCEDURES AT LINDE -  STEP I

The following regulations for operating procedure at Linde ore to be instituted when work on African ore is started. Tests will be made during the first operations to determine what alterations may be necessary for safe operating practice.

1. Unloading Operation:

a. Prior to unloading, both car doors will be left open for a period of twelve hours.

b. Workmen who remove the material from the car to storage will wear:

(1) Toxic dust respirators
(2) Canvas gloves
(3) Clean work clothing daily

c. Filters for the respirators will be changed daily, or more frequently if necessary.

d. A clean pair of gloves will be used each day.

2. Storage:

a. The ore will be stored in the present storage room.

b. A poured concrete wall of 12 inches thickness or a wall of concrete blocks filled with concrete, or of cinder blocks of sufficient thickness to provide the same weight as concrete for a given unit of surface area will be erected to separate the storage area from the rest of the room. This wall will be at least 7 feet high, to protect from direct radiation all employees except those who enter the room. The ore will be piled 10 feet away from the wall, or persons will be prohibited from working routinely within a distance of 10 feet from the wall. This area within 10 feet from the wall may be used as a passageway.

g. Openings through the wall will be provided with a simple "sand" mass.
d. Workmen who enter the storage room with material or to remove it will be provided with:

(1) Toxic dust respirators
(2) Canvas gloves - clean ones daily
(3) Clean work clothing daily

e. Clean filters for the respirators will be provided daily, or more often if necessary.

f. Measurements of the radiation received by the workmen will be made with pencil ionization chambers to determine whether or not rotation of employees is necessary.

g. Determinations of the Na content of the air in the storage room will be made, to determine whether or not fans will be needed. Dangerous conditions is observed it might be tempting to acquire fan installation. Is this correct? Should probably be planned on.

h. Dumping of smalls onto the conveyor will be done under a hood provided with exhaust ventilation.

i. Workmen doing the dumping will wear:

(1) Toxic dust respirators, the filters of which will be changed daily, or more often if necessary.
(2) Clean work clothes daily
(3) Clean canvas gloves daily

j. Only one opening into the conveyor will be used. The other openings will be kept closed.

k. Men cleaning the recovery system of the exhaust will wear:

(1) Toxic dust respirators
(2) Canvas gloves

l. Determinations of radiation received by the workmen will be made by pencil ionization chambers.

m. Determinations of the Na content of the atmosphere at the dumping area will be made.

n. Supplied air respirators might be required. A decision as to their use will be made in the first two weeks of operations, depending on the results of the tests.

Working under such conditions will require special inducements not covered by the list.

EXHIBIT 11
9. Digest and Pachuca Tanks:
   a. Exhaust stacks will be supplied for the tanks. OK.

   b. Employees should not work routinely at a distance of less
      than 5 feet from the tank. Have them stand single file in the
      middle of the deck? Strictly will probably require some remote control.

   c. In the event of a breakdown which requires a workman entering
      the tank, he will be provided with an air-supplied respirator. OK.

   d. Determinations of the H2 concentration of the atmosphere
      above and in the tanks will be made.

10. Moore Press:

   a. Men cleaning the filter press will be provided with the
      following:

      (1) Extra-heavy rubber; acid-type gauntlet gloves. OK.
      (2) Rubber aprons. OK.
      (3) Clean clothing daily. OK.

   b. Barrels containing the press cake will be stored outside.

   c. Measurements of radioactivity at the press will be made
      to determine whether or not adequate protection for the hands is provided
      by the present recommendations.

   d. The H2 concentration at the press will be determined.

   e. That's will be made to determine whether or not all the H2
      has been removed at the Moore press.

11. Vanadium Removal and Lead Recovery:

   a. Light rubber gloves will be worn at the presses. OK.

   b. Toxins dust respirators will be worn by the man who make the
      slurry from powdered lead sulfate. OK.

12. Product Precipitation:

   a. In taking samples, light-weight rubber gloves will be worn.
      OK.

   b. Efforts will be made to prevent slopping or dripping portions
      of samples. NO.

EXHIBIT II
13. Filter Press I

Workmen cleaning this press will be provided with the following:

(1) Thin rubber gloves  O.K.
(2) Rubber aprons  O.K.
(3) Clean work clothes daily, if needed.

14. Acid Leach:

Respirators are worn in adding the dry ammonium sulfates. Their use may be left to the discretion of the workmen.  O.K.

15. Zinco Filter:

Workmen cleaning this filter will wear:

(1) Thin rubber gloves  O.K.
(2) Rubber aprons  O.K.
(3) Clean work clothes daily, if needed.

16. Calciner:

Workmen who handle the dry black oxide at the calciner or at the bag filter of the separator will wear:

(1) Toxic dust respirators  if needed
(2) Canvas gloves - a clean pair daily. $0.00/yr.
WAR ASSETS ADMINISTRATION

Z1-P6D

REPORT CONTROL No. EP-F-13

October 17, 1947

SUBJECT: Preliminary Inspection Report

I. NAME AND LOCATION OF FACILITY

Lake Ontario Ordnance Works
Location: Two (2) miles from Model City, N. Y., five (5)
miles southeast of Youngstown, New York, and twelve (12)
miles north of Niagara Falls, New York. (Rail address -
Model City, New York, telephone Lewiston 202)
Agency WD-1501 W.A. Case WD-NY-1A
Sponsor: WD - Ordnance and Chemical
Exception - not included approximately 30.47 Acres Atomic
Energy Tract and fence enclosure. Jurisdiction of Manhattan
New York District Engineer.

Subject preliminary inspection made on the following dates,
October 3, 9, 10, 13, 14, 15 and 16, 1947.

Land - 2526.10 Acres, consisting of following areas:

(1) Baker Smith and Sanitary Disposal System.
(2) Chemical Warfare.
(3) T.Y.T. (Upper tract area) contaminated.
(4) Acid (Middle tract area) contaminated.

Note: Both Nos. (3) and (4) from "G" to "E" Streets are contaminated.

(5) Shop Section (Lower tract area).
(6) Classification (Extreme lower tract south of
South Patrol Road fence).
(7) Administration (Outside of existing fence line
and South Patrol Road) and Metal Reserve
(attached to lower Administration Section and
bounded by Harol and Swan Roads with New York
Central Railroad Branch Line from Niagara Falls
to Wilson Town along lower southeast corner).
(8) Ste. Niagara and vicinity.

II. PRESENT LESSEE

(1) War Department Permit to Manhattan District Engineer for
Atomic Energy Research storage tract with ingress and
egress rights.

EXHIBIT 12
(2) Existing water usage take-off permits without individual meters from Government-owned 10" line, given by former Post Engineer (Capt. H. Elliot) to

(a) J. K. Glennie (Harold Road), Model City, N. Y.
(b) A. Marshall (Fletcher Road), Model City, N. Y.
(c) L. Pletcher (Fletcher Road), Model City, N. Y.
(d) J. Schultz (Fletcher Road), Model City, N. Y.

Note: Water (Domestic) furnished by Niagara Falls City System into Government-owned 10" main at Stella Niagara. Piped two (2) miles into facility. Shut-off (master) valve and meter located below grade in concrete pit at Stella Niagara intake end. Other end, with shut-off valve located in below grade, concrete pit, in Atomic Energy tract. Shut-off valve is not winterized. Fire Hydrants are not winterized.

III. TYPE OF FACILITY AND PHYSICAL CHARACTERISTICS

Total number of structures found: (Total floor space
370,319 sq. ft.)
- Frame (temporary) Structures - 111
- Steel and Reinforced Concrete Structures - 53
- Copper (Lead lined) Sphere 38' Diamter - 1
- Brick Structures - 5

Total 168 (including 16 not listed, being scrap).

The entire facility is acquired farm lands and the majority of structures built thereon were erected for special purposes and today are of salvage value only.

Central Area (Reference (3) and (4)) is highly contaminated.
The soil is impregnated with dangerous combustible and corrosive acids from residual PET materials.

Below grade extensive pipe (iron) lines interlace these areas and can never be fully decontaminated or safely removed except at considerable cost.

Central sewage (sanitary) disposal system and installed property is in good condition but has only a high salvage value.

All buildings of semi-permanent and temporary construction have good salvage with residual scrap value only for the steel structural and wood timber, etc., in some. The installed property is valuable with a high salvage value in today's market.
Consists of:

(1) Approximately nine (9) miles of 85\% and 115\% Railroad
track spur, switches, manual block signal gear and
crescent dipped ties, all in good condition.

(2) Approximately fifteen (15) miles of 30' x 40' Douglas
fir (crescent/full lath) poles with cross arms, pole
top assemblies and electric lines with various size trans-
formers, switch boxes, etc., including street lighting
system for C.A.W. area.

(3) Approximately five (5) miles of 25' poles, Douglas fir
(crescent dipped) carrying 1 1/2" asbestos covered steam
pipe lines.

(4) Electric motors, sump pumps, scales (Toledo Platform and
Howe 24,000" cap. RR siding type).

(5) Chlorinator plant installation.

(6) Portable (Mobile) locomotive type steam boiler and other
installed steam boilers, with wall (fan) radiators, ceiling
mounted (motor propelled) heating and ventilating units.
All in various structures and in fair to good condition.

(7) Structural steel "I" beam columns and girders easily sal-
vaged by cutting rivet heads.

(8) Sanitary bowls, sinks, hardware and other plumbing fixtures.

(9) Nine (9) miles of cyclone chain link fence enclosure with
various gates.

(10) Lumber (timber) salvage from Railroad trestle (over coal
bunkers) and parking lot area consisting of 6" x 8" -
4" x 8" random lengths.

IV. SERVICE FACILITIES

(1) New York Central Railroad Branch Line thru Model City, N. Y.
(3 miles away) with take-off spur into facilities, nine (9)
miles of track.

(2) Bus system - none.

(3) Water route (Great Lakes). Port of Lewiston approximately
eight miles distant.

(4) Isolated area available only by auto.
(5) Airports - none. (Except Niagara Falls approximately 12 miles away.)

V. RECORDS

WAA-DOD (SPB-S) Declaration Files inadvertently inform "no personal property," but subject field survey and inspection disclosed various items of personal amended property (Code 54) corrected and declared by declaring agency WD-16CA. October 16, 1947, No. W-30-075-593 amount $510.85.

VI. TYPE OF CONTAMINATION

Various (refer to references (2) and (3)) and pending positive or negative report covering tract occupied by Manhattan District Engineer for Atomic Energy Research and storage of ore material.

VII. WORK TO BE DONE TO FACILITY FOR SHUT-DOWN STATUS

(1) Shut-off all water lines from Stella Niagara meter house pit and winterize fire hydrants. Also, shut-off valve on the Atomic Energy tract.

Note: Refer to PRESENT LESSEE, paragraph (2) of this report.

(2) Shut-off electric line from Stella Niagara meter house entirely.

(3) Remove all sump pumps and electric motors installed below grade level to avoid complete loss from storm and sanitary water system "back-up" drainage.

(4) Retain a minimum of three (3) guards to protect installed property against theft and vandalism. Fire protection is terminated October 20, 1947 by declaring agency. Provide a brush truck for patrol and fire purposes.

(5) Change of present ingress and egress right of entry given Manhattan District Engineer (Atomic Energy) instead request be made that their own direct entrance gate be established in own fence line.

VIII. PRESENT METHOD OF PROTECTION AND MAINTENANCE

Account of discontinuance of guard service by Army Engineers, New York State Police (Lewiston Barracks) have been requested, at time of this inspection, to arrest anyone unauthorized found within fence enclosure after midnight October 20, 1947.

EXHIBIT 12
IX. **STATUS OF CABINERALIZATION, IF ANY, IN THE FUTURE FOR HOLDING FACILITY AND MAINTENANCE EQUIPMENT IN DISPOSAL**

Site and structures favor resale to any large chemical manufacturing concern capable of establishing own housing for personnel.

Facility can revert to farm lands when decontamination of all areas is complete and remaining reinforced concrete structure residue has been demolished and removed off site. Demolition and removal costs, if undertaken by WAA will be costly. Roads, minimum type constructed for truck and crawler use, within the facility and leading into same (Government built) are in excellent condition. (Graded to drain.) No maintenance equipment was found except one (1) large fire truck and installed electric sump pumps to control surface and sanitary sewage drainage system.

X. **DAMAGE, DEFECTS OR DETERIORATION WHICH MAY AFFECT FUTURE SALE AND DISPOSAL**

Refer to preceding No. IX.

XI. **PERTINENT INFORMATION REGARDING DISPOSAL FOR INSTITUTIONAL PURPOSES**

Site is not suitable, but many structures can be sold for off-site usage. The installed property can be cannibalized.

XII. **DATE OF FILING (Superceding) SURPLUS DECLARATION**

WAA Form 1005, January 13, 1947. Consists of:

- Acquired Farm Land - 2526.10 Acres
- Acquisition Cost $206,693.50
- Betterments $8,940,570.00
- Total Cost $9,137,263.50

Submitted by:
Mr. E. McFauldy, WAA Zone I
ORPD Plant Maintenance Inspector
M. Walker, WAA Zone I
ORPD Property Acctg. officer

EXHIBIT 12
Decontamination Certificate for Lake Ontario Ordnance Works

This is to certify that on 10 May 1944, the date on which the Lake Ontario Ordnance Works was turned over to the Corps of Engineers by the Ordnance Department, the entire facility had been placed in a decontaminated condition and was in its original purpose in accordance with FR 1A-504.

[Signature]

Chief, Ordnance
Decontamination Officer
WAR DEPARTMENT  
CORPS OF ENGINEERS  
OFFICE OF THE DISTRICT ENGINEER  
NEW YORK DISTRICT  
NEW YORK S. N.Y.

8 August 1947

Calahan

Ref: Decontamination, Lake Ontario Ordnance Works, Youngstown, N.Y.

War Assets Administration  
Zone I  
Real Property Disposal  
40 Wall Street  
New York, N. Y.

ATTN: Mr. H. A. McKean

Gentlemen:

Reference is made to requests from your office dated 24 January, 4 March, 31 March, 25 April and 10 June 1947, for a certificate of decontamination and a decontamination log covering Lake Ontario Ordnance Works, Youngstown, New York.

There is enclosed in duplicate, decontamination certificate received from the Office, Chief of Ordnance containing a statement to the effect that the entire facility had been placed in an idle standby condition for use in its original purpose, in accordance with PR 7A 304. The Chief of Ordnance has advised that no decontamination log, applicable to Lake Ontario Ordnance Works, is available.

FOR THE DISTRICT ENGINEER:

Very truly yours,

D. J. Purley

Chief, Real Estate Division

1 Incl  
Decontamination Certif.  
(in dup)

EXHIBIT 13
in important notice to those who can

~ THIS BELL ~

Buyer's Qualifications:

Each bid must be accompanied by written statements indicating available marketing facilities, technical competence to perform such decontamination as the Government may require, and financial responsibility.

Information on the qualifications of bidders and conditions under which bids will be considered are contained in a special bid form obtainable only at the address given herein. A considerable portion of these facilities are heavily contaminated with explosives and acids, and must be decontaminated by the purchaser in accordance with ordnance procedure.

Ten Army Ordnance Works for Sale

To be sold as units to qualified buyers

(a) either for their own use, or

(b) for decontamination, dismantlement and removal, in whole or part, to any number of third parties

This is your opportunity to secure, under most favorable conditions, valuable plant, processing units, machinery and equipment which are currently in great demand.

Plants & Equipment Include:

- Production and processing equipment at two or more locations
- Ammunition fabrication, ammunition and ordnance facilities
- Chemical, metal, rubber, and chemical facilities
- Storage and treatment equipment, water supply and treatment, mechanical and repair shops, laboratories, storage tanks, administrative buildings, warehouses, and a variety of other installations.

How To Bid: Bids will be made only by the acceptance of sealed bids which must be made on the forms supplied for that purpose and submitted unsealed for each property or for groups of two as indicated, before the time given below:

Ordnance Works

Worthington Ordnance Works

From 0000 B. F., Ma

Plouf Service Ordnance Works

Inland, Ohio

Kempsy Ordnance Works

Kempsy, Va.

Comeret Ordnance Works

Comeret, Texas

Andrews Ordnance Works

Andrews, New Mexico

Submit bids before

2:00 P.M., EST, January 23, 1948

2:00 P.M., EST, February 12, 1948

2:00 P.M., EST, February 12, 1948

2:00 P.M., EST, January 23, 1948

2:00 P.M., EST, February 12, 1948

2:00 P.M., EST, February 12, 1948

Don't Wait...Write, Wire or Phone

This advertisement does not constitute an offering. To receive consideration, your bid must comply with the special bid form for the property you are interested in. Write, wire or phone, today to the address given below for your copy of the bid form and to arrange for inspection of the property.

Address all correspondence to

P. O. Box 17907, Washington, D. C.

EXHIBIT 14
CONTAMINATION

Owing agencies have not been too careful about reporting instances of contamination with the result that disposals of land have been made without proper notice to the buyer, and no requirement has been made that the buyer assume responsibility for decontamination. The Legal Division holds that regardless of such contamination clearance, VAA is not relieved of liability in making transfers without safeguards contained in the deed as approved by the Attorney General.

Mr. Whittet requested that a policy be formulated on this matter. Admiral Mather directed that a policy be formulated in collaboration with this office, the Office of General Counsel, and the Office of Disposal Policies. The paper should then be presented with appropriate concurrences. Colonel Carroll was designated to monitor this project in coordination with Mr. Whittet. Mr. O'Brien raised the question as to whether or not decontamination certificates could be obtained from the Army. Admiral Mather stated that the administrator had directed that no more funds would be spent for decontamination.

Mr. Lomis stated that the Army requires that Army personnel inspect the facility; however, Mr. Whittet stated that this inspection was visual.

DECONTAMINATION

The War and Navy Departments have declared surplus to VAA T17 airports having a high octane gasoline storage capacity far in excess to that capacity required by municipalities and countries in the operation of airports for other than war purposes. The unused tanks are in a highly hazardous condition and in many cases the tanks are not located on the property which is designated by the CIA as airport property. The Owing Agencies have indicated an unwillingness to effect the decontamination of these tanks and transfers - both to VAA for custody, protection and maintenance and to the county or municipality - have been affected without this work being performed. Under the provisions of Regulation 11, paragraph 3511.6(b)(2), provides that the cost of placing property in condition to insure its reasonable preservation and safety, including decontamination and removal of explosives, shall be borne by the owning agency. However, owning agencies have refused to perform this work pleading an unavailability of funds and at the time the installation was declared by the owning agency designation as to the number of tanks to be used by the permittee under Regulation 16 is not known and is rather difficult to demand the compliance with Regulation 11. Admiral Mather directed that the details be worked out in coordination with Budget, Plans and Policies, and General Counsel in order to have a meeting of the minds within the

EXHIBIT 15
F. W. Selmore, Director, Production Division

B. S. Wolf, M.D., Medical Director

STORAGE OF X-65 AT LCSW

This memorandum will summarize the present status of the X-65 storage at LCSW from the point of view of the Medical Division.

In our opinion, the decision to utilize the igloos rather than the box factory simplifies the problem of providing adequate safeguards for this operation. However, as stated in our memorandum of January 31, several months of experience must elapse before we can fully understand this problem and be specific in our recommendations for control measures.

We have now had approximately five weeks of experience with this operation at LCSW. We have observed the unloading of 6 cars of X-65 and the loading of 5 lots into one igloo.

Our immediate objective is to evaluate the radiation and radon exposures to employees engaged in the handling of this material. In addition, we are faced with the need to evaluate the possibility of general atmospheric pollution by radon both on and off the site.

Radiation Exposure to Employees:

The following table summarizes the radiation exposure, as measured by pocket meters during X-65 handling operations at LCSW:

<table>
<thead>
<tr>
<th></th>
<th>3/23</th>
<th>3/30</th>
<th>4/7</th>
<th>4/8</th>
<th>4/11</th>
<th>4/20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. Jaffe - Lift Oper.</td>
<td>110</td>
<td>120</td>
<td>60</td>
<td>160</td>
<td>50</td>
<td>40</td>
<td>540</td>
</tr>
<tr>
<td>H. Karolowski - Lift Oper.</td>
<td>75</td>
<td>60</td>
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The "tolerance" for whole body gamma irradiation is being revised downward throughout the project to 500 mr. per week. We recommend that the operating level be less than 150 per week (450 mr./month). The safety factor thus afforded will allow for possible uncertainties in our monitoring methods.
and will also serve as a "cushion" in the event of another reduction in permissible exposure. The above table covers the unloading of 6 carloads and the loading of one igloo. We have been informed that shipments of X-65 to Lake Ontario will be at the rate of 5 carloads per month. Thus, in addition to the unloading of 5 cars per month, it will be necessary to consider the exposures involved in the loading of two igloos. Examination of the above data indicates that the preferred level of whole body irradiation will be exceeded unless considerable improvement is made in the method of handling the drums.

It should be possible to conduct this operation safely, using one crew of 5 men, if the handling procedure can be simplified. We have had preliminary discussions with your staff and there appears to be agreement that a considerable reduction in handling time can be achieved. On the basis of data thus far obtained at LNCH and elsewhere, we are presently estimating the monthly dosages for alternate handling procedures. We will submit this information to you in a few days.

Exposure of Employees to Radon:

The principal radon exposure occurs when working in igloos containing X-65. A lesser exposure exists in the unloading of freight cars, but we have demonstrated that this can be controlled by the exhaust fans now installed in the freight cars, and this exposure should not therefore be a problem at LNCH.

Radon measurements during the loading of one igloo indicate that the concentration of radon rises rapidly during this loading operation. The concentration at the conclusion of the first day's loading operation, at which time 96 drums were stored in Igloo #9050 was 29 times tolerance. Loading operations were resumed on the following day at which time when Igloo #9050 was re-entered, the concentration was 71 times tolerance. The door to this igloo had been closed overnight, and the concentrations dropped during the subsequent loading operations to 26 times tolerance.

In our opinion, these concentrations are not hazardous if the employees continue to wear the demand type respirator, as originally recommended.

It will be necessary for us to investigate the manner in which radon concentrations build up after the igloos are sealed. It is our understanding that the drums will be inspected periodically and it may be necessary to provide mechanical ventilation in order to flush out the igloos prior to the

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EXHIBIT 16
entry for inspection. This is not a major problem, and can be solved, if necessary, by the use of portable blowers.

General Atmospheric Pollution by Radon

The fact that the igloos are thermally insulated should somewhat minimize the problem of general atmospheric pollution by radon. Our experience at the airport storage area, where measurements were made with approximately 600 tons of sludge, leads us to believe that the dispersion of radon from the igloo areas, even at maximum capacity, will not be a problem. We will make periodic tests in this area as the accumulation of sludge increases. The maximum permissible concentration of radon, beyond the perimeter of our property, should be less than 5 x 10^-12 curies per liter.

If the sludge could be stored in hermetically sealed drums, there could of course be no radon problem. It is for this reason that the possibility that the drums can be welded sealed is especially attractive. During the original discussions concerning LOON, this practice appeared feasible, but more recently you have raised technical objections to welding the drums. At the present time, the use of hermetically sealed drums does not appear essential. However, with further experience, if the problem should prove to be more stubborn than we now believe, if more rigid criteria are imposed on this office, it may be necessary to again consider methods of providing gas tight seals for the drums.
To: R. J. Smith, Jr., Assistant Director, Production
From: H. J. Hershman, Chief, Tonawanda Sub-Office

Subject: Weekly Report March 2-8

I. Operations:

Production:

The zirconium residue removed from the TAM warehouse and dumped into pits has been covered over with earth. Immediately after covering this material sporadic explosions of the buried drums occurred. Following the explosions patches of fire and steam arose from the ground. In several instances the fire was intense enough to burn small sections of the warehouse close by. During the first day the residue was buried the explosions, fire and steam were continuous, lessening the second and third days until no evidence of this condition was observed on the fourth day, or since.

Mesers. Cumio of NTG, Updegraaff of The Cirdler Corp., and Showalter of Cleveland Area visited LOSA on March 6 in connection with Phase 4 of the Schedule for the Vitamin Project, the evaluation of plant site. These representatives toured the site, inspected building and utility facilities, accumulated data on union wage rates for construction, etc.

Administration:

Invitations to Bid on surplus inventory of motors are being issued and public opening of bids is scheduled for March 26;

Inventory of equipment being held for Harshaw and stored in the box factory scheduled to be completed by March 2 has been accomplished.

Segregation of equipment in building 717 into good serviceable equipment and scrap scheduled to be completed by March 16 will be finished by March 12th. Arrangement of equipment according to category, in 717, will be completed by March 13th.

A representative of Schreck Scrap Service Inc. of Tonawanda, N.Y. visited LOSA to inspect scrap to be shipped to Diamond Magnesium upon receipt of an invitation from the latter to submit a bid on this work.

Imports & Exports:

Applications for new Term Bonds for another year were filed and accepted at the Ports of Buffalo and Niagara Falls, N. Y.

Two radium sources were exported to Eldorado for repair or replacement for Westinghouse Atomic Power Lab., Homestead, Pa. EXHIBIT 17.
Radium Source No. 2929 was exported to Eldorado from Mallinckrodt Chemical Works for repair.

Two Survey Alpha Meters were imported from Eldorado and forwarded to NYDO Health & Safety Division in connection with the Instrument Recall Program.

One carload of Dolomite was imported from Norton Co., Chippewa, Ontario, for National Lead Co. of Ohio.

CC: H. Hershman
The following personnel were actively engaged in the contaminated waste monitoring operation and are cognizant of the findings:

William Robinson - Project Engineer, Mathieson Chem. Co.
Everett Bray - Safety, Mathieson Chemical Co.
Paul Seager - Hooker Chemical Company
David Pettegman - AEC, Niagara Falls Site
G. W. Showalter - AEC, Niagara Falls Site
P. B. Klevin - AEC, HASL, NYCC

At the conclusion of the survey a meeting was held to discuss the findings. The following was agreed:

1. All SF material should be recovered by hand or manual scooping, taking normal health and safety procedures in performing said operations.

2. Empty X-65, Q-11 drums, cesium gaps, etc., although constituting no great value, are a definite radiation hazard and need to be removed from the area.

3. After removal of all process material found in the two piles of rubble, waste, concrete, etc., in the Castle Garden Dump, the remaining rubble will consist of non-hazardous bulk, contaminated material.

4. Semi-hazardous contaminated attractive nuisance (i.e. nuts, bolts, stainless steel pieces) which are scattered above the burial area and tracks north of 54th Street need to be manually recovered and buried.

CONCLUSION

The results of this survey showed sources of waste contamination exceeding the permissible level had been found on that portion of land being released to the U. S. Navy. However, there is no health and safety objection to the release of the land if the following recommendations concerning the wastes now stored on that land are observed:

1. Compressor House Area

The building proper (Building 8212) can be used without any restrictions. However, drum and residue behind building should be recovered and removed to the AEC area. All other materials (Items 15-16) should be handpicked and buried.
Burial Ground North of "M" Street

(a) Inasmuch as all waste materials have already been buried and since average 3 foot radiation readings taken over the covered burial area were only 0.05 mr/hr, it is my opinion that excavation of such wastes to another storage area would cause unnecessary safety hazards, radiation exposure and labor costs. However, there was found, as shown in the Table, items which include nuts, bolts, etc., need to be manually recovered and buried.

(b) The U. S. Navy and any future land owner should be informed of the exact burial locations of the contaminated wastes. Figures 1-4 attached, and any additional information should be transmitted with the property deed.

Rochester Burial Area

(a) The radiation hazard signs can be removed from the area surrounding the Rochester experimental animal burial ground.

(b) The cesium gaps, process material found adjacent to the Rochester burial should be manually recovered. The process material should be channelled to the proper production facilities while the gaps should be removed from the area, and processed for burial on land or sea.

Castle Gordon Road Waste

This large dump area as shown by the survey findings is composed of excessively hazardous, semi-hazardous, and non-hazardous bulk contaminated materials. The following action should be taken:

(a) Excessively contaminated materials such as gaps, process material, pipe, K-65 drums, etc., should be manually removed and either processed for burial or for materials recovery.

(b) Semi-hazardous contaminated material, especially that which may be attractive, should be recovered and processed for eventual burial on land or sea.

(c) Non-hazardous bulk material, i.e. concrete piles, transite etc., can be used for fill by the contractor with no restrictions.

After removal of materials and waste showing high radiation readings, this area can be released without any restrictions.

EXHIBIT 18
Personal protection, i.e. film badges, pocket meters, and other protective measures should be utilized when recovering radioactive materials and scrap from the individual dump areas and during ultimate processing of these wastes.

An individual delegated with the responsibilities of health and safety should be present during waste recovery and processing operations to curb any overexposures and accidents.
QUITCLAIM DEED

THIS INDENTURE, made this ___ day of ____, 1966, between the UNITED STATES OF AMERICA, acting by and through the ADMINISTRATOR OF GENERAL SERVICES, under and pursuant to the powers and authority contained in the Federal Property and Administrative Services Act of 1949 (63 Stat. 377) as amended, and Regulations and Orders promulgated thereunder, party of the first part, and FORT CONTI CORP., a New York corporation having its principal place of business at 474 Main Street, Buffalo, New York, party of the second part,

W I T N E S S E T H:

That the party of the first part, for value received,
consideration of the sum of NINETY-EIGHT THOUSAND EIGHTY and 00/100 ($98,800.00) DOLLARS, having thereby received from the party of the second part, the sum of NINETY-EIGHT THOUSAND EIGHTY and 00/100 ($98,800.00) DOLLARS, the United States paid to the party of the second part, or its successors and assigns, without representation or warranty, express or implied.
Reference is made to your memorandum of April 18, 1955, symbol FL-116, subject: "Disposal of Contaminated Scrap", enclosing a draft of a proposed staff paper concerning the use of LOA as a waste storage and disposal area, and asking for our comments.

In the General Assumptions for FY 1957 Budget estimates item 5c(5) states, "The Borex 10 production plant will be shutdown at the end of FY 1956 and placed in standby". Provided that no change in production requirements occurs, we are prepared to relinquish control of that site at the end of FY 1955, and recommend that the responsibility for its administration be given to some other Division or Operations Office.

With respect to the use of LOA as a permanent waste storage and disposal site we would like to offer for your consideration the following comments which are considered pertinent to this problem:

While it is probably true that LOA was originally obtained for the storage of contaminated material, the choice of the site hinged more on availability rather than any unique features making it suitable for such storage. In addition, it was originally contemplated that only residues from feed materials operations would be stored, the nature of these residues being such that few problems were anticipated from the storage of these materials.

Although contaminated materials other than feed process residues have since been stored at the site, it should be noted that very little actual burial has been practiced. The majority of materials at LOA are stored in bulk or in containers, many of which are now in extremely poor condition and stored in structures which offer little or no protection from the elements. While leaching and surface drainage have apparently resulted in the spread of some measurable activity to some distance outside the reservation limits, we do not believe, on the basis of our present information, that LOA should be considered grossly contaminated. While obviously many problems would be encountered in removing materials already stored and in cleaning up the area, it is felt that this could be accomplished with reasonable economy in view of the limited area recently involved and particularly, when recovery of the low
Said property transferred hereby was duly determined to be surplus, and was assigned to General Services Administration for disposal pursuant to the Federal Property and Administrative Services Act of 1949 (63 Stat. 377), as amended and applicable rules, orders and regulations.

By the acceptance of this deed, the party of the second part for itself, its successors and assigns, covenants and agrees that it will not use the land conveyed hereby as a garbage dump and will not litter or deposit any refuse or residuals on said land that would tend to breed vermin or cause obnoxious or noxious odors or odors.

IN WITNESS WHEREOF, the party of the first part has caused this instrument to be executed in its name by

Edward V. Kline, Acting Regional Administrator,Region 2, General Services Administration who has hereunto set his hand and seal the day and year first above written.

In the presence of:

[Signature]
PAUL F. CIRILLO

By: /s/ Edward V. Kline (L.S.)
EDWARD V. KLINE

EXHIBIT 19
grade residues becomes economically feasible.

The populated areas of Lewiston and Youngstown, New York, are but 3.5 and 4.0 miles from LOSA respectively, and expansion of these two cities in the last several years has been in the direction of the site. At some time in the near future it is anticipated that a large hydro-electric project, with the power station located in Lewiston, will be built which will substantially increase the electric power presently available in this area. Should this become an accomplished fact, it is not unreasonable to assume that this area may look forward to greatly accelerated industrial and residential expansion, which is even now encroaching upon and surrounding the LOSA area. The objections to, and disadvantages of, a permanent burial site in such an area are, of course, immediately obvious.

The logic behind the selection of the LOSA area seems to be inconsistent in some respects. For example, one of the reasons cited for its selection is that the area is already contaminated and there would be no need of contaminating a new area. Yet, the two parcels of land on the site recommended for use will contaminate soil that is now free from radioactivity. The ground water data indicate that fluctuations in the water table will ordinarily restrict burial to relatively shallow trenches and enable burial to be practiced only during the late autumn months of the year. Such conditions as these are considered far from ideal, particularly since little information on burial is available in this area and because a controlled program of waste disposal is difficult to achieve under the best conditions.

We are in entire agreement that a storage and burial area is sorely needed to serve the Commission installations in the Northeast section of the country. Also, we recognize the problems which would be involved in acquiring new areas for such use. Nevertheless, it is considered that the permanent use of the LOSA area would be undesirable from a long range Commission standpoint because of:

1. Industrial and residential growth potential of the area around LOSA.

2. Control of a relatively small (200 acres) area for such use, limited lifetime (50 years), and limited access for burial due to a high water table.

While reasonable shipping distance is cited as one of the favorable aspects of the LOSA area, it is believed that more suitable areas for such a site could be found in Vermont, Pennsylvania or West Virginia which would offer the same or better geographic proximity to the using installations.
I appreciate your assistance in attempting to develop a solution to this over-all problem, and your keeping us advised regarding developments.

ORIGINAL SIGNED BY
E. A. WENDE

CC: M. R. Woodruff
H. R. Dowling
H. M. Roth

EXHIBIT 20
September 14, 1954

J. H. Babcock  
Vice President  
Hooker Electrochemical Company  
Niagara Falls, New York

Dear Mr. Babcock:

This letter will confirm the agreement reached this morning relative to the disposal of waste material from the Carborundum Metals Company by way of the 36th outfall line existing at the old Lake Ontario Ordnance Area.

We have agreed that the Hooker Company will be held harmless for any damages, legal action or penalties which might result from this disposal operation.

It is further agreed that the Hooker Company will allow access to tank trucks between the hours of 8 a.m. and 5 p.m. for the purpose of accomplishing this disposal.

It was further agreed that the Water Pollution Control Board, State of New York would verify in writing its willingness to have this waste material disposed of in this manner. The writer has contacted Mr. A. F. Dappert, Executive Secretary of this Board, who has agreed to have such a letter in your office by Thursday morning, September 16.

Dr. J. A. Lieberman of the AEC Engineering Division has agreed to contact Mr. Frank Dowling, Director of Feed Materials, Oak Ridge, Tennessee, who will, in turn, notify Mr. C. W. Showalter, Site Representative, that AEC approval has been granted. This, too, will be accomplished by Thursday morning, September 16.

In anticipation of the fulfillment of all of the above factors, the Carborundum Metals Company has made arrangements with a trucking company to start this operation September 16.

We sincerely appreciate your cooperation in this matter.

Very truly yours,

CARBORUNDUM METALS COMPANY  
PLANTS, LABS., BUILDINGS & LAND

M. C. Bartholomew  
Vice President & General Manager  

EXHIBIT 21
September 15, 1954

Mr. E. C. Bartholomew
Vice President and General Manager
The Carborundum Metals Company, Inc.
Post Office Box 52
Akron, New York

Dear Mr. Bartholomew:

Reference is made to your telephone call of September 14, 1954 concerning the existing outfall line of the Lake Ontario Ordinance Plant as a temporary means of disposing of wastes produced at your plant which have caused serious pollution of local streams in vicinity of Akron.

You are referred to letter of February 23, 1954 addressed to you by Mr. B. D. Bates, Chief, Sewerage and Wastes Section of the State Department of Health. The approval under the conditions stated in the last paragraph of Mr. Bates' letter and reading as follows has never been withdrawn and therefore continues:

"The discharge of the industrial wastes from the Carborundum Metals Company plant in Akron into the Niagara River through the existing 30" outlet pipe in the Lake Ontario Ordinance Area is, accordingly, approved at the rate and in the concentrations not exceeding those indicated in the letter of February 16, 1954 for such period as is necessary to develop and construct more permanent works for waste disposal at the company's plant in Akron."

I have re-read your letter of February 16, 1954 to which Mr. Bates has referred. The entire river flow, of course, cannot be counted upon in calculating the dilution which will be afforded under the arrangement for discharge of these wastes as proposed.

Undoubtedly, at point of discharge and for some distance below until the wastes become well mixed with the river water, a zone will be established under the proposed rates of discharge within which concentrations of ammonium compounds may affect fish life. Whether or not establishment of such a zone would actually result in killing of fish or simply act as a repellent to fish is not known. While it is possible that discharge of the wastes in the concentrations and at the rates approved by Mr. Bates would result in no adverse effects upon fish life, this is by no means a certainty.

We are satisfied that if the discharges to the river are made at a sufficiently slow rate, that the proposed method of temporary disposal will be satisfactory because it is not possible to predict with any certainty the exact effects upon the river at the proposed discharge rates, we feel that it is necessary to qualify the
approval as formerly given by Mr. Bates by asking that arrangements be made to discharge the wastes to the river at a much slower rate and, if at all possible, to construct a holding basin or perhaps use some of the existing facilities so that the wastes can be bled to the river at a fairly uniform rate over a period of several hours.

It must be understood, of course, that the above approval will have to be withdrawn if adverse effects should result.

It is hoped that you will make good progress toward a permanent solution of your waste disposal problems so that the temporary use of Niagara River as an outlet for your wastes may be discontinued as soon as possible.

Very truly yours,

A. F. Deppe, P. E.
Executive Secretary

[Handwritten signature]

[Handwritten note: Signed by appropriate authority]
Enclosed is correspondence received by this office on September 15 relative to the thiocyanate waste disposal problem. Confirming our telephone conversation of this afternoon, this office awaits specific written authorization from Oak Ridge before accepting this material.

A specific question is raised as to whether the first paragraph of Mr. Bartholomew's letter of September 14 does constitute a "hold harmless" provision. I understand you will contact the Legal Division on this matter.

No communication has been received from Mr. A. F. Dappert as yet.

Our contractor's attitude is one of distaste, since pollution of the waterways by chemical companies around Niagara Falls is a constant public relations issue. Therefore, in general they will take action in this matter only to the extent that they are specifically instructed by the AEC.

Enclosures:
1. Ltr 9/14 from Carborundum Metals
2. Ac Ltr 9/14 from Carborundum Metals to Hooker

PLANTS, LABS., BUILDINGS & LAND

AIR MAIL SPECIAL DELIVERY EXHIBIT 23