PUBLIC MEETING

before

ASSEMBLY ENVIRONMENTAL QUALITY COMMITTEE

Status of Civilian and Military Cleanup
of Hazardous Discharge Sites

May 21, 1987
Room 403
State House Annex
Trenton, New Jersey

MEMBERS OF COMMITTEE PRESENT:

Assemblyman John O. Bennett, Chairman
Assemblyman Robert W. Singer, Vice Chairman
Assemblywoman Kathleen A. Donovan
Assemblyman Robert C. Shinn, Jr.
Assemblyman Frank J. Gargiulo
Assemblyman Robert G. Smith
Assemblyman Byron M. Baer

ALSO PRESENT:

Mark O. Smith
Office of Legislative Services
Aide, Assembly Environmental Quality Committee

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Hearing Recorded and Transcribed by
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State House Annex
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Trenton, New Jersey 08625

New Jersey State Legislature

ASSEMBLY ENVIRONMENTAL QUALITY COMMITTEE
STATE HOUSE ANNEX, CN-068
TRENTON, NEW JERSEY 08625
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MEMORANDUM

May 15, 1987

TO: *ASSEMBLY COMMITTEE ON ENVIRONMENTAL QUALITY*

FROM: *ASSEMBLYMAN JOHN O. BENNETT*

SUBJECT: *COMMITTEE MEETING - Thursday, May 21, 1987*

(Address comments and questions to Mark O. Smith, Aide to the Committee at (609) 292-7676.)

The Assembly Committee on Environmental Quality will meet on Thursday, May 21, 1987, beginning at 10:00 AM in Room 403, State House Annex, Third Floor, Trenton. The subject of the meeting will be to continue the review of the status of the cleanup of hazardous discharge sites at military facilities. The Department of Environmental Protection and the U.S. Environmental Protection Agency will have representatives at the meeting to brief the committee. In addition please be prepared to consider the following bill:

A-3300 Kelly	Prohibits storage or disposal of low-level radioactive material in schoolgrounds or municipal property used by public schools without municipal approval.

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

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mjz: 1-42

ASSEMBLYMAN JOHN O. BENNETT (Chairman): I would like to call the meeting to order. As many of you know, today is the continuation of the inquiry being conducted by this Committee with respect to the status of the hazardous discharge cleanups at the Federal military facilities in the State of New Jersey. We heard a formal presentation from the Department of Environmental Protection, and we are fortunate today to have with us Christopher J. Daggett, who is the Regional Administrator for the United States Environmental Protection Agency's Region II Office. Chris, of course, is no stranger here in the State of New Jersey, having previously worked in the Governor's office prior to assuming his present role at EPA.

I think many of us know that when the military investigation was conducted by this Legislature, and concluded approximately a year and a half ago, there were many questions that were left unanswered with respect to what was the status of cooperation between the Federal facilities, EPA, and DEP. Certain statutory changes have occurred since that time -- in the last year and a half -- clearly defining, in some cases, and totally clouding in others, the relationship between the three agencies I have just discussed. I am hopeful today that when we hear from EPA we are going to hear about the status of communication they are receiving from the Federal facilities. If there are any problems, I am hopeful they will surface, so we will be able to pursue and address them.

We also have DEP present, so that once we get through the formal presentation and get into some questions and answers, I am hopeful we will be able to move ahead in the direction of seeing exactly what remains to be answered and exactly what has to be done in the future.

Without further ado, I would like to now call upon Chris Daggett to make his presentation to the Committee. Chris, you may bring whomever you wish up with you.

C H R I S T O P H E R J. D A G G E T T: Thank you, Mr. Chairman. My name is Christopher Daggett. I am the Regional Administrator for the U.S. Environmental Protection Agency's Region II Office. The regional office covers the States of New York and New Jersey, the Commonwealth of Puerto Rico, and the United States Virgin Islands.

I am the senior official in the EPA regional office responsible for implementation of the agency's efforts to manage hazardous wastes and remediate waste sites. This authority is provided under the Resource Conservation and Recovery Act -- RCRA -- and under the Comprehensive Environmental Response, Compensation, and Liability Act -- CERCLA -- which was amended by the recent passage of the Superfund Amendments and Reauthorization Act -- SARA. I appreciate this opportunity to discuss our efforts to implement these programs at facilities owned or operated by the Federal government. With me today are Robert Hargrove, Federal Facilities Coordinator in the Environmental Impacts Branch, Office of Policy and Management; Alida Karas, on my far right, and Carole Petersen, on my left, of the Program Support Branch, Emergency and Remedial Response Division, also in Region II.

Through enactment of RCRA and CERCLA, Congress empowered EPA to manage hazardous wastes and to remediate the environmental problems caused by improper past management of these wastes and other hazardous substances. To achieve these goals in a uniform manner throughout the country, Congress mandated that EPA action in waste management include Federal facilities. Federal entities must abide by the same laws applicable to the private sector. Not only do statutes require it, but good public policy dictates that the Federal government set an example for the private sector in proper hazardous waste management.

Public concern has arisen, however, regarding the adequacy of overall efforts to mitigate uncontrolled hazardous

waste sites and to respond to releases at existing and former Federal facilities under RCRA or CERCLA.

Some time ago, EPA Administrator Lee M. Thomas established the goal that waste management and mitigation at Federal facilities serve as a model for the similar activities that we require of the private sector. Our goal is to ensure that the Federal government demonstrates leadership in environmental control practices through Federal facility compliance with air, water, toxic chemical, and hazardous waste requirements.

Today, I would like to discuss what we have done and will continue to do to assure that Federal facility mitigations are conducted in accordance with the CERCLA/SARA and RCRA requirements. I will briefly outline these requirements. Before I do so, please note that there are currently three Federal facility sites in New Jersey on the National Priorities List -- NPL. As you are aware, the NPL identifies target sites for priority remedial action under CERCLA/SARA. The NPL sites are: Fort Dix Landfill, Naval Air Engineering Center, Lakehurst, and Naval Weapons Station, Earle. In addition, there are a number of non-NPL Federal facilities in New Jersey currently undergoing remedial actions.

The passage of SARA in October, 1986 makes it clear that Superfund applies to Federal agencies, both procedurally and substantively. The specific requirements for Federal agencies are found in section 120 entitled "Federal Facilities." Section 120 sets forth a process to ensure that Federal agencies assess and remediate their hazardous waste sites within specified time frames. This process is under EPA's oversight, and provides states and citizens the opportunity to be involved.

A major activity under SARA is establishment of the Federal Facility Hazardous Waste Compliance Docket. The docket will be the mechanism to provide the public with access to

information submitted to EPA by the Federal agencies under RCRA and CERCLA. Since the docket will be updated on a six-month schedule after its establishment, current information on action taken under SARA for a particular facility will be available to the public. There are two efforts involved in this activity: 1) Development of the initial list of facilities on the docket at the time of enactment of SARA; and 2) Establishment of the repositories for the documents required by the specified statutes. These efforts are currently under way, and we anticipate that the docket will be published this summer.

The next step in the process is a preliminary assessment and evaluation for each facility on the docket. This is to be done within 18 months of the enactment of SARA. Region II is currently working with the Federal agencies to ensure that they comply with this requirement. Even though the docket is still being prepared, the region has been working with the Federal agencies on a number of preliminary assessments. To date, 15 preliminary assessments have been done by the Federal agencies for facilities located in New Jersey.

After the preliminary assessments are completed, each facility will be evaluated for inclusion on the NPL. This is to be done not later than 30 months after the passage of SARA. When a site is promulgated on the NPL, the Federal agency must start the Remedial Investigation/Feasibility Study, the first step in mitigation, within six months of final listing. The RI/FS is intended to completely characterize the hazardous waste problems at a particular site and to provide data to formulate remedial actions to address these problems. If a site is on the NPL at the time of enactment of SARA, the RI/FS is to be initiated within one year of enactment. The three Federal facility sites, located in New Jersey, which are currently proposed for inclusion on the NPL, are all in the RI/FS process. Section 120 further states that within six

months of completion of the RI/FS, the Federal agency is to enter into an Interagency Agreement with the EPA for completion of all remedial actions at the facility. SARA requires that actual mitigation commence within 15 months of completion of the RI/FS. Remedial action is required to be completed as expeditiously as practicable.

Of special note is that all such Interagency Agreements must comply with the public participation requirements of section 117 of SARA. This section requires that a community relations plan be formulated for each site on the NPL, that information repositories be established, that the public be notified of activities at specific steps in the Superfund process, that the public have access for review of and comment on these activities, and that technical assistance grants may be provided to the public to assist the public in its review. This will ensure that the public is as involved in the Superfund process at Federal facility sites as they are at any other Superfund site.

As stated above, the objective of the Interagency Agreement is to establish a framework and schedule for remedial and corrective actions to be taken by Federal facilities that are consistent with CERCLA, RCRA, the National Contingency Plan, and State law.

Formulation and implementation of the IAGs have raised a number of complex issues, including State involvement, and the overlap of RCRA and CERCLA authorities at Federal facilities.

With respect to RCRA/CERCLA overlap, it is often difficult to determine whether the contamination problems at Federal facilities are covered under CERCLA or RCRA, or both. Our position is that where the mitigation could be compelled under either RCRA or CERCLA, the choice of law will depend on a number of factors, including timing of activities at the facility. Our overall objective is to make mitigations under RCRA and CERCLA as consistent as possible.

With respect to the State role in the development of the Interagency Agreements, EPA historically has worked cooperatively with the states to ensure that their concerns are considered in the process. This is evident in the IAG for the Fort Dix site, where EPA, the State of New Jersey, and the Department of Defense joined together to formulate a workable solution to the problem. EPA looks forward to this type of continued cooperation. In fact, section 120(F) of SARA requires that EPA provide the states with the opportunity to participate in the planning and selection of the remedial action. This includes the review of all applicable data as they become available and the participation in the development of studies and action plans.

Although section 120 of SARA requires Interagency Agreements to be negotiated only for remedial action, recent EPA policy recommends the negotiation of preliminary IAGs for the RI/FS process for NPL-listed facilities. In this regard, EPA and the State have been meeting with the Navy to formulate the IAGs for the Lakehurst and Earle Superfund sites. We are confident that an agreement, as mandated by SARA, will be reached and implemented as the sites enter the remedial design and action phases. Each site is currently in the RI/FS phase of the process.

Another example of the State role in this process is illustrated by the provisions of section 121 of SARA. In general, this section requires remedial action at Superfund sites to comply with Applicable, Relevant, and Appropriate State Requirements, more commonly known as ARARS. Thus, the states are included in the process by defining ARARS and working with EPA and the Federal agencies to ensure compliance with the ARARS. This provision applies to all mitigations whether they are conducted by EPA, private parties, or other Federal agencies.

Section 211 of SARA provides for the establishment of technical review committees at Department of Defense facilities. The purpose of these committees is to provide the opportunity for EPA, State and local officials, and members of the public to meet regularly with facility representatives to review and comment on proposed CERCLA actions. Committees of this nature have already been established at Fort Dix, NAEC Lakehurst, and NWS Earle. EPA and the State have been active participants of these committees.

Another issue of importance that has arisen is one of dispute resolution in the event EPA and the Federal agency cannot agree on a remedial action plan for the site. EPA policy establishes a dispute resolution process based on Executive Orders 12088 and 12580. For example, in the case of DOD Superfund sites, EPA, NJDEP, and DOD will make reasonable good-faith efforts to resolve the dispute in an informal manner. In the absence of such an agreement, a defined process for dispute resolution will be followed with EPA, NJDEP, and DOD positions stated in writing and exchanged on specified time schedules. If necessary, the dispute resolution process will be raised successively to two layers of review; first, to the project coordinators designated by each party and then to a dispute resolution committee of policy level personnel designated in the Interagency Agreement. If the dispute is still unresolved, the Administrator of EPA will make the final decision, thereby resolving the issue. The State is part of the process throughout and may reserve appeal through SARA or under State laws applicable to the site.

As part of this testimony, I am submitting updates on a number of Federal facility sites in New Jersey. These were provided to Assemblyman John Bennett on April 1, and represent the latest status for these sites.

In summary, I want to emphasize that strict compliance with the requirements of the law is our goal for all Federal

facilities within Region II. EPA national policy is clear in this regard and, from my experience, DOD officials also share this goal. Several weeks ago, I had a conversation with Carl Schafer, who was recently promoted to the newly created position of Deputy Assistant Secretary of Defense for Environment, and we have mutually agreed to have our respective staffs identify areas of concern at Federal facilities and to develop a plan of action to overcome any problems. Good communication and a strong commiment to information exchange among all parties involved -- EPA, the Federal agencies, the State, and the general public -- are the first steps.

Some time ago, I indicated that in Region II, Federal facilities are a priority, and I feel we are improving our good working relationships with the other Federal agencies and the NJDEP. We are committed to making further progress and I expect that you will see continued movement in this direction as the Federal facilities program matures. I look forward to keeping you informed of our progress.

Again, I appreciate the opportunity to speak before you today. I would be happy to answer any questions you may have.

ASSEMBLYMAN SINGER: Very fine testimony. May I ask one question? Has anything been looked at regarding the possible prosecution -- as to who is at fault for some of these sites? You know, I have a problem when I find that we use a double standard. The standard in the private sector is, if we find that these sites were created and it was someone's fault, we end up indicting people. But it seems on the Federal level now that that is kind of not happening. Is anyone looking into the fact that there might have been criminal negligence on the part of someone with regard to these sites.

MR. DAGGETT: To my knowledge -- and I will let Bob Hargrove get into some specific details on sites -- we do not have any kind of criminal activity, or investigations under way

at any of the Federal facilities. I might add that criminal investigations are not ongoing at a large number of other sites either, outside the Federal facilities. As you know, it is a very difficult and long process to collect that kind of information, and then carry it through to an actual charge, and then ultimately a conviction. But, with respect to Federal facilities, we do not have any under way that I am aware of. Bob?

R O B E R T H A R G R O V E: Not in this region.

ASSEMBLYMAN SINGER: Is any one at all taking the blame for what has happened? I mean, is there anybody saying this was done based on the orders of the commander of the base, based on policy set by the Department of Defense? In other words, I am trying to establish in my own mind exactly how these things happen. Was it accidental? Was it just a standard policy?

MR. DAGGETT: I see what you're saying. My guess is -- and it is somewhat of a guess -- the sites we have on Federal facilities are not unlike those we have in the private sector. At the time they were done, they were done either through some ignorance of the law, or, more importantly probably, many of these things started because the waste disposal was an accepted practice at the time. That started long before these environmental laws came into place.

So, what you've got is the result of years of activities on sites, which we are only coming to understand now. We are really problematical in some ways. I think it is probably more that than it is ignorance of the law, although that may come in at times in recent years. But I tend to doubt that as much as I do the longer term problem.

ASSEMBLYMAN SINGER: I agree with that, and I can see that happening. For example, I know at Lakehurst-- What do you do with a truck where you want to clean out the fumes, or something like that, from gasoline? You go in the woods

and clean it out. That might have been the procedure at that time. I understand that. I am not looking to fault someone who is doing something that was established years ago, who doesn't know any better. But, I am curious about whether anyone has looked at whether there was any misdoing, if there was someone breaking the law, or has that just not been looked at at all?

MR. DAGGETT: We haven't really looked into that. I think what we have done is take the approach that we have responsible parties identified, i.e., in this case, the military, and we work through more of the procedures as they are outlined in how we go about mitigating a site. We are more interested in that than we are trying to identify some sort of a criminal act that may have occurred years ago, which would be very difficult to track down. I think more important to us at the moment is making sure that they comply with present laws, and that they are, in fact, taking care of, in some fashion, any problems which occurred from previous practices.

ASSEMBLYMAN SINGER: You're right. Certainly our priority is to see that it doesn't happen again, and that the sites are cleaned up. But I would like to know, if you can tell me, who would be responsible for looking into that? Certainly not EPA.

MR. DAGGETT: I think EPA would have a role in it if we felt there were some sort of criminal activity, but we would-- That starts to get into -- as you are well aware -- some of the questions about what role one Federal agency can play vis-a-vis another one. I am not exactly sure. I am sure we would have to bring in the Justice Department, and work it through with them at the same time.

But, again, I don't think we have had any indication that any of these activities occurred through intentional disregard of environmental laws.

ASSEMBLYMAN SINGER: Can we get a statement from EPA along those lines?

MR. DAGGETT: Pardon me?

ASSEMBLYMAN SINGER: Can we get a written letter to that effect from EPA? I would be satisfied with that.

MR. DAGGETT: I will look into that in more detail. Bob, you may want to add something. I don't know if you have any further information.

MR. HARGROVE: We have no-- Not under CERCLA or SARA, but there have been some activities -- criminal enforcement activities -- done in Region III, although I don't know all of the specifics, under the Clean Water Act and TOSCA. In general, what happens is, the case is referred to EPA's Criminal Enforcement Group, which is headed up out of our Colorado office of what is the National Enforcement Investigation Center.

MR. DAGGETT: Right.

MR. HARGROVE: Each region has criminal investigators in the region, although they all report back to this NEIC group in Colorado. They do the preliminary investigation. If they feel it warrants merit, it gets turned over to the respective U.S. Attorney for further investigation.

MR. DAGGETT: I think the point is, if we really felt, in the region, that we had some sort of criminal activity going on, we wouldn't hesitate to do whatever we needed to do to track that down.

ASSEMBLYMAN SINGER: Well, what I am curious about -- not to belabor the point-- On both of those bases, because I am familiar with both of them -- Lakehurst and Earle -- there are a tremendous amount of private contractors who do the bulk of the work.

MR. DAGGETT: That is correct.

ASSEMBLYMAN SINGER: I am curious that maybe some of these problems were created by the private contractors, as opposed to the military itself.

MR. DAGGETT: That is very possible.

ASSEMBLYMAN SINGER: Again, if there is a clean bill of health there, and you are willing to say that you find it was not done with any criminal intent, that is good enough for me. But I think somewhere down the line we should get that. I only refer to the fact that I have a Superfund site in my district, and there are indictments going on right now, and there are people going to trial, based on what they did--

MR. DAGGETT: That's right.

ASSEMBLYMAN SINGER: --buried drums illegally, and things of that sort. I just think we in government also have to say our sites are clean that way, and we are not going to intentionally-- I am not looking to hang it on someone. I would like to get that clean bill of health in my mind, that there is not--

MR. DAGGETT: I think what we would probably do is tell you something to the effect that, to the best of our knowledge-- I mean, we wouldn't make a definitive statement, because, as you know, we might discover something later that would lead us in a different direction. So, I want to be careful how we state that. I will get something back to you that more specifically answers that.

ASSEMBLYMAN SINGER: I would appreciate it. Thank you. Bob?

ASSEMBLYMAN SHINN: I notice we have Fort Dix on the priority list; that is, the Fort Dix Landfill itself.

MR. DAGGETT: Right.

ASSEMBLYMAN SHINN: Fort Dix has been around, I guess, since shortly after the turn of the century. I happened to have a fellow who worked for me part-time in my business who operated a bulldozer at the Fort Dix Landfill, and I have a little better insight than most people into what was the state of the art in burying materials on the Fort Dix Landfill. I think, to a large degree, what is still appearing with military

bases is, they get hung up on this defense mission scenario. This is part of the defense system, the need to dispose of materials. We sort of got into a loggerhead situation with Fort Dix when they wanted to expand that landfill, which we knew was contaminating groundwater.

Finally, the general of the base got involved -- or their base engineer -- and the ultimate result was a consent order being signed that closed their landfill. Through efforts, I guess directly from the Pentagon, they received money to build four 20-ton, mass-burning steam generating facilities, which supply steam to one of their primary base steam generating stations. It is up and running, and is very successful.

Of course, McGuire and Fort Dix share a common boundary; in fact, the BOMARC site, as I understand it, is on a piece of ground that is leased from Fort Dix. Of course, we are back into a defense mission with McGuire, and we get essentially little or no information on the BOMARC site. When I look at the Fort Dix site -- which I have some knowledge of -- the big question mark is, how does this rank with the BOMARC site from a potential environmental impact standpoint?

I am not trying to ask you a question you can't answer, but I guess in my mind, and in the public's mind, the lack of information on the BOMARC site may really make it appear to be a worse situation than it is. From the information you have, what is your impression of those two issues?

MR. DAGGETT: Again, I will let Bob Hargrove get into the details of the sites. But let me just say in general, I would concur that when people don't give you the information, it creates in people's minds that doubt that makes them think that maybe there is something worse there than there really is. Every indication we have is that that site, at least at the BOMARC facility, was sealed over some time ago, as you

know, and that there is no off-site migration of any of the contaminants there. I think that is why we are anxious, as are you, to get this information that has been collected of late, and that has-- I guess we have been told that it may not be available until February, 1988.

We are working on that issue now, trying to see if we can't get that information out a lot faster than that. But, by way of explanation, and not to try to defend the length of time it is taking to get that data, working with contractors, as we all do, we will get information back occasionally -- and we have had this happen on our own Superfund sites, as has the State-- You get information back, and it isn't what you thought, or it is not quite handled the way you thought it should be, or so on, and you give it back to the contractor. There is a lot of this back and forth with the contractors on data, to make sure that it is good data, and that can take some time. Sometimes we will get data back for the first time and will not release it to people for maybe a month or two months or more.

Now, to me, we keep trying to collapse that time frame and get better information right up front from the beginning, so we don't have to have this kind of back and forth. But, it is a constant battle with the contractors and the agency and so on. I suspect that the military goes through somewhat the same situation. I personally feel, however, that 10 months time -- or whatever it is going to be -- or 10 to 12 months -- is an excessive amount of time. That is what we will work through with the Air Force. In addition, I will take that up as part of my discussions with Carl Schafer, which I indicated in my testimony I am about to go through with him on problem areas. In that particular instance, and as an example of another problem with data-- This information, I think, is handled out of -- what is it?

MR. HARGROVE: Scott Air Force Base.

MR. DAGGETT: Right, Scott Air Force Base in--

MR. HARGROVE: Illinois.

MR. DAGGETT: Illinois. The base commanders here don't always have control over the cleanup plans. They are reporting to someone else who isn't even in this State maybe, as is the case here. That data is being handled out at Scott Air Force Base. Consequently, it makes it all the more difficult for us in the region also, because we are still working through that chain of command as well.

Those are some of the very issues that I want to address with Mr. Schafer, to say, "Look, this isn't the best working condition, to have us have to continue to try to find the best route to get to wherever this data is." Again, it is another example of where the data gets out there somewhere, and we can't reach it. So, we will try to address it. We have every indication, as I said, that the particular site at BOMARC is a sealed site. But, again, let me have Bob speak more specifically to details in a comparison to Fort Dix.

MR. HARGROVE: Okay. First off, at the BOMARC site, there is ongoing-- The BOMARC site is considered part of their Installation Restoration Study, although the actual study of the BOMARC site -- the missile accident site itself -- is being conducted by a different group. That is being conducted by-- I believe it is the -- well, I call it OEHL. Don't ask me what it stands for -- Office of Environmental Health and something else -- down in-- They are located down in Texas. Because it was as a result of a nuclear weapon accident, they really have the lead for all of the investigations. We have, for the BOMARC site specifically -- the missile accident site -- current data up through, I believe, 1986. They sample that site annually or, if they don't have the money, they will bump it off biannually, but for the past seven years they have been sampling it annually. Those reports are all available. We can send them to you, or you can actually get them from the Air Force, if you would like them.

As a matter of fact, if you write to the Air Force and ask them to send-- If you send a Freedom of Information Request in and ask them for every piece of information available on the BOMARC site, they will send you a stack of about-- It's about a foot and a half high; you know, a foot and a half thick of data. Obviously, you don't need that, or you may want it. But that is basically everything that is releasable on the BOMARC site.

So, the data is there, and they are willing to share it with people. What Chris is talking about is their IRP study. It includes the BOMARC site, but it isn't specifically being investigated as part of the IRP. It is being investigated by this other group down in Texas. That is the data we are trying to get. That covers the rest of the base, and a few other odd sites that are on the BOMARC missile site -- not the accident site, but there are four other sites on the BOMARC facility. There is an open-- There was a battery dumping area, and several other sites. They have just recently removed an underground storage tank, which may have been contaminating things over there, which had jet fuel in it.

So, there are other sites on the 220-acre BOMARC site. With respect to the BOMARC missile accident site, we are convinced, given the data we have seen, that on the BOMARC site itself, on the boundaries within the BOMARC accident, or within the BOMARC facility, which is part of Fort Dix-- It is on lease -- it is on indefinite lease to the Air Force. Basically, the Army does not want it back, because of all of the problems, specifically with the plutonium contamination at the BOMARC accident site.

Now, within the boundaries of the BOMARC missile site itself, we are convinced that it isn't moving anywhere, based on the fact that they have capped those areas; they capped the drainage ditch that runs down alongside the fence line. That has all been capped with concreate and/or asphalt. We are

convinced that that contamination is basically stabilized. However, there is an area off of the missile site itself -- the missile facility itself. It is a little thing that runs under our 539. It is a continuation of the drainage ditch -- okay? -- and this is unexposed. This is one of the things we have been working on with both the Air Force and the Army, to have them at least cover that so there isn't any sort of exposure. I mean, when Chris says it isn't off the facility, he is correct. It isn't off the facility, because it ran over into Fort Dix. So, it is basically still Federal land that it's on, but it is basically the end of the drainage ditch. Okay? It's just like a seepage pit. There is contamination in the first six to ten inches of that, of the residual plutonium contamination. Basically, it ran off before they put the asphalt down on that culvert. But, it hasn't moved, and it isn't moving. We are concerned about it because there is a possibility of, you know, although it is a military base, you can drive there. I mean, someone changing a tire could conceivably be exposed, because it is dirt basically. The plutonium oxide has adherred to the dirt.

So, we are trying to get either the Air Force or the Army, or both of them, basically to bite the bullet on that, and cover it so we are convinced then that there is no public exposure to the plutonium contamination.

ASSEMBLYMAN SHINN: One of the things happening at Fort Dix-- I know DEP is involved, and I know they have the '86 data, at least they testified to that. You do have the '86 data on BOMARC, right, DEP? Do you have the '86 data on file in your records?

D R. J O H N J. T R E L A (speaking from audience): Yes, sir, we do.

ASSEMBLYMAN SHINN: I guess the essential concern-- I guess my appeal to you, Chris, is, when you are talking to higher level officials-- We have a monthly environmental

meeting at Fort Dix now where we talk about storage tanks; we talk about the Fort Dix Landfill. DEP is involved; our Health Department is involved; the military is involved. Colonel Richardson is about to depart, but he has been very forthright and forthcoming with the problems. It has really lowered the trauma level with that facility. I think if we could encourage more openness-- What's happening is, these military bases are no longer islands that sit amongst themselves, which are not in interaction with the community. For Fort Dix, they are depending on the Bordentown Landfill for ash disposal. After April, 1988, they will be depending on the county for ash disposal. If their unit goes down, they are going to depend on the county landfill.

So, right away there is interdependency and interaction between the two facilities. I think that is awfully important, and I guess we have to get to a higher level, because I know in some cases, base commanders do not have the authority to release information.

MR. DAGGETT: That's right.

ASSEMBLYMAN SHINN: I think the open issue, to be able to appropriately prioritize both in DEP and EPA what is the most important environmental problem, what has the largest potential to impact people off-site, is the one we ought to be addressing the earliest.

I appreciate your comment on data gathering because that is a real problem. I guess it is that fine line between data gathering and stonewalling that we've got to differentiate between.

MR. DAGGETT: That's right. Our goal is certainly to drive open this process as much as possible. We believe we ought to conduct all of the business we do with Federal facilities, or whomever, in as open an atmosphere as possible. Sometimes with the military we bump up against questions of national security and so on, and we try to address those. But,

we are trying to open this process up, and to the extent that we can, we will continue to push in that direction. I think that is the most encouraging sign I get in my discussions with Carl Schafer at DOD. I think he basically feels the same way. As you indicated earlier, the minute you don't, even if it isn't a high-risk area-- We are trying to drive our decision-making and our actions based on what areas pose the most risk and address those first. But, it could be a completely low risk, but if people get the sense that data is being held, or that something is being hidden from them, it is going to end up having a life of its own, and be addressed in a very different fashion than it might if we were open throughout the process. So, we are trying to open it up as much as possible.

ASSEMBLYMAN SHINN: One of the greatest compliments that always stuck in my mind was-- General Kelly was the base commander when we got into this Fort Dix contest over their landfill expansion. When he digested all of the issues and we had a sit-down meeting, the first one where I thought I was really going to get barbecued at, he came up with the statement, "If you can't drink the water, why win the war?" I think when they give you this national defense business, that statement makes a lot of sense.

MR. DAGGETT: That's right.

ASSEMBLYMAN SHINN: You know, if you don't have water you can drink, there is no sense winning the war, because you are going to lose anyway.

MR. DAGGETT: Exactly.

ASSEMBLYMAN SHINN: I think that experience with Fort Dix is something that ought to be-- I think they won the Federal environmental award at the base.

MR. DAGGETT: Yeah, I believe so.

MR. HARGROVE: In 1983, or '84.

ASSEMBLYMAN SHINN: We gave them an environmental award at the county level. That experience ought to be editorialized a little more, because they have had a very active base cleanup. They have gotten fuel tanks out of the ground. They have had other environmental problems they have addressed. They meet monthly in an open forum and talk about their issues and their progress. It is a real pleasing experience. I think we have to do more of that -- encourage more of that.

A L I D A M. K A R A S: We have found those meetings to be very helpful. They help us, as well as DEP. We make sure that every month we are there with the facility. We get the latest information and update on the base, and contribute our input. As you said, the Pinelands Commission is there, and the county.

We have tried to duplicate that same system at some of the other bases. As Chris mentioned in his testimony, we have that going on also at Earle, Lakehurst, and one that wasn't mentioned, the FAA down in Pomona. So, that is the kind of thing we have been trying to do for quite a while now. It is called for in SARA now. They have been given a name -- Technical Review Committees. So, we will be putting that process into effect.

ASSEMBLYMAN SHINN: That's great. I think that is where we should be going as quickly as possible.

MR. HARGROVE: McGuire Air Force Base is in favor of organizing a Technical Review Committee. The problem is, they don't have control over the study. We recently met -- I guess at the end of March, or the beginning of March -- with the people in the Air Force. I mean, this is the whole thing. When you finally decipher who is doing what-- The Air Force is one of the worst ones, because they have bases, and they have their major commands. Fortunately, the way it works out in New Jersey, you only have a Military Airlift Command Base. That is fortunate. In New York, we have the three commands: the

Tactical Air Command, Military Airlift Command, and Strategic Airlift Command, which are all controlled by different bases throughout, but not in, New York.

The main controlling base for McGuire is the -- the major command, rather -- is Scott Air Force Base. There is a push now on with the Air Force, where they are taking the responsibility for the Installation Restoration Program away from-- Right now, for some reason, it is with the Surgeon General's office of the Air Force. They are taking that away and putting it in with the engineers, to have a more centralized operation. So, we are looking forward -- when that is finally implemented -- to having better working relationships with the people who are actually doing the study. Once we get that, they plan on organizing their Technical Advisory Committee. Actually, we are going to push them to do it now, because the base has to be more involved. Quite frankly, the base doesn't know the-- We know more about the status of the ongoing IRP than the base does.

ASSEMBLYMAN SHINN: Very good. Thank you.

ASSEMBLYMAN BENNETT: Thank you. I have some questions I would like to raise myself on both site specifics, as well as the overall program. However, what I would like to do, so that there is total balance and, in fact, we can get a whole story-- A member of the Special Committee during the last term on the military investigation is present today. She requested that she be permitted to make a statement, and be able to raise some of the questions she left at the time of that investigation -- questions, in her opinion, which were left unanswered-- She is desirous of attempting to raise them again.

So, I would like to invite a colleague of ours, Barbara Kalik, to come forward and join us up here at the table for the purpose of making a presentation. She will be more than welcome. Barbara, come right up, if you would like.

A S S E M B L Y W O M A N B A R B A R A F. K A L I K: Thank you, Mr. Chairman. I wanted you to notice my Chinese style jacket, as I welcome you back from China. I am then going to open it so you can see the magnificent pearls that I managed to get, even though I didn't go to China.

Before I proceed with my prepared statement, I am going to give it to the members of the Committee, and any members of the press who are interested. I think it is important that we do exactly what you suggested; that is, get a very balanced view. Because the subject is complex, and because there is so much to it, I would like you to kind of read along with me.

Although I do want to say I agree that compliance with our State's environmental laws is where we ought to be -- that is the most important factor -- compliance -- I am not sure I agree that the military has necessarily been good boys in this particular instance. I am not sure we have gotten all of the cooperation we could have gotten, or should have gotten, or might get, or will get. I am not sure I agree that BOMARC has been stabilized and is no problem, or that it is coming along. Certainly the fire occurred in 1960; it is now 1987. It seems to me that in 27 years we ought to have been able to gather or garner more information, and done more things about it. It has been three years since we all discovered that there was such a thing as a fire, and in those three years, all we have been able to discover are more and more and more serious threats to the environment, with very little effort to take care of those threats.

With that I am going to begin my statement. Thank you, Mr. Chairman, for the opportunity to be heard today on the pressing subject of curtailing military dumping in New Jersey.

Former Assemblywoman Marlene Lynch Ford has already testified to this Standing Committee in regard to the scope and severity of this overall matter, based on a wide array of

evidence gathered by the Assembly Special Committee on Hazardous Waste Practices at Military Installations, which, during late 1985 through early 1986, conducted a comprehensive and historic investigation of hazardous waste practices at 11 Army, Navy, and Air Force bases located throughout this State.

To summarize the Special Committee's findings under the leadership of Chairwoman Ford, we discovered, based on data gathered principally from EPA, DEP, and the various military installations, over 200 toxic sites scattered throughout these 11 bases, including, at most of the bases, toxic landfills and hazardous dump sites impacting groundwater supplies relied upon by surrounding populations for potable water, and in some cases -- notably Fort Earle -- threatening surface water supplies similarly relied upon for drinking water; previously undisclosed radioactive sites at no less than three present or former military bases, of which the BOMARC site is by far the most severe; at least two bases -- the Picatinny and Raritan Arsenals -- where land mines, high-powered explosives, chemical weapons, and the like are suspected or confirmed to be buried around the premises; and the list goes on.

Equally alarming, the Ford Committee, on which I was privileged to serve -- along with Assemblywoman Jacquelyn Walker -- found clear and convincing evidence that salient data on these sites was, wittingly or unwittingly, systematically being withheld from public scrutiny.

We found that enforcement of applicable environmental laws was utterly lacking on the art of the military, the EPA, DEP, the New Jersey Attorney General, or any other relevant State or Federal agency.

We found, in many instances, that nobody was even keeping track of the seemingly unbridled abuse of precious natural resources on and beyond the premises of these facilities.

Based on our investigation, which terminated with the transition to the 202nd Legislature in January, EPA was provoked into intensifying its scrutiny over hazardous waste practices at these various bases. This fact is evident on the face of the EPA Superfund updates recently made available to your Committee. You will note from these documents that many of EPA's initial and follow-up visits to the bases occurred during the course of the Ford Committee investigation.

Mr. Chairman, this is no coincidence. Mr. Daggett, EPA Regional Administrator for New Jersey, and your key witness here today, testified in the course of our Special Committee hearings in the fall of 1985 that State legislative oversight is key to effectuating his agency's attention to hazardous waste practices at Federal facilities. Frankly, my own experience, not to mention my latent intuition in regard to governmental bureaucracies in general, is that oftentimes ongoing legislative oversight is essential and vital to agency action. To put it in the vernacular, you have to be a noodge to get anything to happen.

In the absence of such oversight, there is no doubt that matters quickly revert back to a status quo ante, described by Mr. George Tyler, DEP Assistant Commissioner charged with monitoring military dumping practices through early 1986, as follows: The Federal government, said Mr. Tyler with respect to military dumping, has been "withholding reports for several years."

Hence it was the case that, for an incredible 25 years, the people of this State were kept ignorant of a 1960 explosion of an Air Force nuclear missile, and a subsequent fire which raged out of control and released deadly plutonium into groundwater and the air. As you know, the State was informed of this environmental catastrophe only when, in 1985, the Air Force offered the site of the BOMARC fire as a place to dispose of radium-contamined soil from Montclair and Glen

Ridge. And only a week or so ago, Mr. Chairman, despite DEP's late-April protestations to Montclair and Glen Ridge residents to the effect that the State's use of that site would be an invitation to disaster, Governor Kean could be seen on the New Jersey Network proclaiming that the BOMARC site was still under consideration as a disposal site for the Essex radium dirt.

The terms of the Air Force's 1985 offer of the BOMARC site to the State are unacceptable, in that the offer was conditioned on the State's assuming financial responsibility for cleaning up this mini-Chernobyl in Plumstead Township. I am informed that DEP's most current estimate of the cost of cleaning up the BOMARC site is in the ball park of roughly one-half this State's entire five-year civilian toxic cleanup budget under the Bennett-Dalton Act.

According to the Department, in its recent representations to Montclair-Glen Ridge, the prospect of utilizing the BOMARC site as a radium soil disposal site is, in any event, absurd on its face, since putting the radium dirt there would make it orders of magnitude more dangerous, and hence more difficult to dispose of permanently, as compared with any conceivable alternative plan.

Mr. Chairman, the BOMARC coverup did not end in 1985. It has not ended to this date.

Based on disclosures by DEP to Montclair and Glen Ridge residents during the week of April 20, 1987, which disclosures prompted the New Jersey Network to dub the BOMARC site possibly the worst single hazardous waste site in the entire country, I learned of the existence of various documents pertinent to BOMARC which had theretofore never come to public light.

First, there is the July, 1985 exchange of letters, among the Air Force, Governor Kean, and EPA Administrator Lee Thomas, relative to the Air Force's initial disclosure of the site.

Second, I have obtained a 1986 Air Force report which discloses that the two-acre asphalt and concrete containment structure at the BOMARC site is emitting over 100,000 pico-curies per gram of radioactivity to this day. It is my understanding that the State danger level for indoor radon gas is four pico-curies.

Third, I have a recent "draft" DEP update on the BOMARC site which questions the integrity of the containment structure at the site. This is consistent with 1985 DEP testimony to the Ford Committee relative to the lack of integrity of containment and the lack of security of the premises surrounding the site. And I must tell you that this highly radioactive site is enclosed by an eight-foot fence, and beyond the fence, on the bunkers, is graffiti. If that is secure, I don't know what to say to you.

Finally, Mr. Chairman, DEP has informed staff that an internal departmental memorandum estimates the cost of cleaning up the site at between $125 million and $250 million.

Most alarming, Mr. Chairman, it is my understanding that, despite your recent request of all relevant agencies -- DEP, EPA, and the various bases including McGuire and Dix -- for all relevant information relative to military hazardous sites in this State, this Standing Committee of the Legislature has, to date, not received any of these documents from any of these respective agencies.

Upon learning of the existence of relevant current facts in respect to BOMARC, Minority Leader Karcher was prompted, on April 24, to form an Assembly Democratic Task Force on Military Dumping, which I am privileged to chair. Our initial press conference of that date will be followed with substantive hearings throughout the State relative to hazardous waste practices at every military installation in New Jersey, over the next several months.

Mr. Chairman, I shall be pleased to share with you, with the press, and with the public at large, such data as our Task Force compiles with respect to these matters. I am submitting into the record of this hearing the various documents relative to BOMARC which are presently in our possession, and which I understand this Committee has been unable to acquire.

Personally, I am duty-bound to be extremely concerned about the potential impact of the illegal military dumping practices on the innocent residents of my county. Quite apart from the McGuire-Dix BOMARC site, which has been historically unregulated, recently documented hazardous waste activities and practices at both Fort Dix and McGuire Air Force Base portend nightmarish threats to precious critical groundwater sources, and hence public health.

In fact, Mr. Chairman, the Ford Committee was told in the fall of 1985 that it was the Fort Dix Landfill, not the BOMARC site, which posed the greatest risk to residents around the base. I am of the opinion that both are, in fact, dangerous and threatening.

Specifically, this monster dump located near the southwestern boundary of the base, a designated Superfund site, is known to be leaching killer contaminants into precious critical groundwater supplies. Groundwater, as you know, Mr. Chairman, does not respect legal boundaries or the confinements within a military base.

The 1985 Superfund update -- this was prior to the start of the Special Committee -- on the Fort Dix Landfill presented to the Ford Committee describes the site as follows:

"In the past, the landfill was used for the disposal of municipal waste generated on the base. From the 1970s through the 1980s, McGuire AFB disposed of chemical wastes in the Fort Dix Landfill.

"The Fort Dix Landfill was officially closed in July, 1984, after having been in operation since 1950. Access to the landfill had not been controlled until 1980, so records of what was buried there are incomplete; however, it is known that after controls were established, drums of liquid waste" -- we don't know what they were; we have to presume they were solvents -- "were refused burial. It is also known that a pit had been dug adjacent to the landfill to dispose of grease cleaned from mess hall traps and that chlorinated solvents may have been used as a grease trap cleaner.

"On November 1 and 3, 1982, samples were taken of the Fort Dix Landfill's groundwater monitoring wells. Results of the sampling revealed that the groundwater was contaminated.

"On February 17, 1984, samples were collected from monitoring wells. Results indicated the groundwater was contaminated. High concentraions of ethyl benzene in excess of 50 ppbs and diethyl phthalate in excess of 120 ppbs were found. Other monitoring wells exceeded the standard for mercury and cadmium."

The 1987 Superfund update with respect to Fort Dix, recently submitted to this Standing Committee, describes the ecological debacle which is the Fort Dix Landfill as follows:

"The Fort Dix Landfill, approximately 113 acres in size, is located in the southwestern section of Fort Dix, Pemberton Township. Burlington County, New Jersey. The landfill is approximately 2200 feet from the post boundary.

"The landfill has been in operation since 1950 and officially ceased on July 6 1984. During that time, the landfill was used by Fort Dix and by McGuire Air Force Base since 1969. Access to the landfill had not been controlled until 1980, so records of what was buried there are incomplete. However, after controls were established, drums of liquid waste -- perhaps solvents -- were refused burial. This would suggest that burial of drummed waste was standard

practice. Moreover, it is known that adjacent to the landfill a grease pit, approximately five-tenths of an acre in size, was dug and used for the disposal of grease cleaned from mess hall traps and grease trap cleaners, which may have included chlorinated solvents.

"The results of groundwater samples taken in 1982 through 1984 clearly indicate groundwater contamination by hazardous substances in the vicinity of the landfill. Specifically, high levels of volatile organics -- for example, diethyl phthalate, chloroethane, methylene chloride, trichloroethane -- mercury, and cadmium have been detected; many of which are hazardous substances within the meaning of the Superfund list. The August, 1984 sampling results effectively substantiate that the landfill and adjacent grease pit area are both contributing to the volatile organic contamination present in the groundwater. The elevated levels of volatile organics detected are not typical of sanitary landfills, but are probably a result of the post's solvent disposal at the landfill.

"The depth of groundwater contamination extends to 32 feet in the southeast; to 50 feet in the south; and to 60 feet in the southwest. The stream along the eastern and southeastern portions of the landfill controls the directions of local or shallow groundwater movement. The direction of groundwater movement through the landfill itself is predominantly toward the south and southeast and eventually discharges into the stream which flows out of the south end of the property and beyond."

EPA's 1985 Superfund update on McGuire Air Force Base, prior to the Ford Committee, describes:

"Nine areas of concern which have been identified, which include five landfills, a sludge disposal area, a pesticide wash area, a fuel storage area, a drum burial site, and a fire training area.

"All nine sites are located on the base, which is within the environmentally sensitive Pinelands.

"Based upon analyses which have been performed, levels of contamination were found in soils and groundwater.

"EPA has documented groundwater contaminated with organic halogens, oil, grease, off-site migration of Chlordane, DDT, and DDE, low concentrations of PCB in soil, elevated levels of oil and grease in soil, and the possibility of buried drums."

EPA's 1987 McGuire update adds:

"The sources of most of the hazardous waste generated at McGuire AFB are associated with industrial shops, fire protection training, pesticide and herbicide utilization, heat and power production, fuels management, and Defense Property Disposal Office -- DPDO -- storage. In addition, spills have occurred at McGuire involving quantities of fuels, oils, and hydraulic fluids.

"McGuire AFB is located in the northeast corner of the New Jersey Pinelands. Surface soils at the base are typically sandy, permeable, and possess shallow water levels. The base is located within the exchange zone of the Cohansey Sand Aquifer, the Kirkwood Formation Aquifer, and the Vincentown Formation Aquifer, all either exposed or very near the ground surface.

"Potential contaminants -- for example, phenols, copper, arsenic, nitrates, and pesticides -- were found in samples. EPA believes the major potential groundwater contaminants are organic halogens. In addition, oil and grease were found in 13 of the 17 wells and soil samples."

Mr. Chairman, these official EPA findings are frightening on their face. What is more frightening still, however, is that nowhere in the files of the Ford Committee, nor, I believe, in the files of this Standing Committee assembled to date with respect to military dumping, will you

find a shred of evidence that the Federal government has any clue of a plan to clean up any of these toxic sites.

What you will find, Mr. Chairman, among other things, is a consistent pattern of lack of enforcement of applicable environmental laws on the part of the military, the EPA, and the DEP.

In 1985, the Ford Committee received from DEP a list of specific known violations of such applicable laws by the various bases, which I am herewith submitting into the record of this hearing. I have recently requested of DEP that it provide a 1987 update of this dossier, and upon receipt of same I will turn this updated material over to this Standing Committee.

Mr. Chairman, the environmental threat collectively posed by hazardous waste practices at these bases is intolerable to the people of this State. Consider, for example, that groundwater monitoring results reported by EPA, based on samples taken at Picatinny Arsenal in Morris County, indicate groundwater contamination levels which may well belong in the "Guinness Book of World Records" -- 12,000 parts per billion of cancer-causing TCE. This State's "maximum contaminant level" for the presence of this chemical in drinking water is, I believe, three parts per billion. We are talking about 4000 times the allowable State level. The Picatinny Arsenal, Mr. Chairman, sits atop the Upper Rockaway Basin Aquifer, a federally designated "sole source aquifer," one of about a dozen nationally.

You may be aware that, under the terms of the Federal Safe Drinking Water Act, Federal funding of any enterprise which impacts adversely on a designated sole source aquifer is prohibited. I must also point out that New Jersey has for some years been seeking sole source designation for this State's entire system of groundwater aquifers. Incidentally, on the way here this morning, on the radio, I heard Commissioner

Dewling speak about setting a new statewide standard for drinking water. So, this is not, in fact, a subject that is likely to be glossed over quickly.

Mr. Chairman, this past Monday, Assembly Democrats introduced three Assembly Resolutions pertinent to military dumping in this State:

Assembly Resolution 153, which I am sponsoring, along with 12 co-sponsors, requests the Attorney General of this State to file suit against U.S. military bases in New Jersey for compliance with, and enforcement of, all applicable Federal and State environmental laws, and against EPA for non-enforcement of same.

Assembly Resolution 154, in which Minority Leader Karcher has been joined by five co-sponsors, including myself, would grant subpoena power to this Standing Committee for purposes of further investigation of hazardous waste practices at New Jersey military bases. I feel this is absolutely essential, in light of past practices and our inability to get testimony and documents.

Assembly Resolution 155, in which I am joined by 10 co-sponsors, requests the Speaker of the General Assembly to reappoint members to the Assembly Special Committee to Investigate Hazardous Waste Practices at Military Installations, in the interest of avoiding any future hiatus in relevant legislative oversight.

I am submitting these three Assembly Resolutions into the record of this hearing, Mr. Chairman, and I hereby call upon each and every member of this distinguished Standing Committee to join me as co-sponsors of these pending measures.

Separately, Mr. Chairman, I am today introducing substantive legislation which will require DEP to enforce applicable environmental laws pertinent to permitted and non-permitted hazardous waste practices at these bases, and to compel cleanups at the many military sites. I urge every

member of this Committee to join me in sponsoring this historic legislation.

Toward that end, Mr. Chairman, I am submitting into the record herewith the opinion of nonpartisan Legislative Counsel, dated May 14, 1987, as to the extent of civilian, including State, jurisdiction and authority to enforce Federal and State environmental laws regulating hazardous waste disposal activities as those laws apply to Federal facilities in New Jersey.

You will note the principal conclusion of Mr. Porroni in this 20-page opinion, to the effect that:

"The extent of civilian jurisdiction and authority over Federal facilities in regard to hazardous waste disposal activities occurring thereon appears to be considerable; with respect to Federal hazardous waste disposal law, it appears to be, for the most part, equivalent to the jurisdiction and authority over other persons."

Both State government, Mr. Chairman, as well as individual citizens, clearly have standing to sue the Federal government to compel enforcement of applicable environmental laws in regard to military dumping in New Jersey. Colorado, it will be noted, has already filed suit against the Army for such enforcement. Ohio, Minnesota, California, South Carolina, and Washington are, along with the National Association of Attorneys General, contemplating similar legal action to enforce environmental laws applicable to Federal facilities.

Mr. Chairman, I submit to you that the time is long since past when this State's officials entrusted with enforcing environmental laws ought to have commenced legal action to protect the water we drink and the air we breathe from the continuing scourge of military dumping.

Recent events at the Picatinny Arsenal, giving rise to organized public rage among surrounding communities, attest to the fact that if State government does not act in a timely,

diligent, and effective manner to protect the health and welfare of our people and the environment, the people will rise up to protect themselves.

Thank you, Mr. Chairman.

ASSEMBLYMAN BENNETT: Thank you, Assemblywoman Kalik, for that brief, five-minute summary.

ASSEMBLYMAN SHINN: You know, there is one thing, Mr. Chairman--

ASSEMBLYMAN BENNETT: Yes?

ASSEMBLYWOMAN KALIK: This is my bill. I am going to pass it to you. If you feel you can share the outrage I feel, I ask that you join me.

ASSEMBLYMAN BENNETT: Assemblyman Shinn?

ASSEMBLYMAN SHINN: One thing which I wholeheartedly agree with Assemblywoman Kalik on is Senator Lautenberg's plan to dump Essex's radon dirt at McGuire, because I was directly involved in that. For some reason, he didn't get credit for that in the report, but that was clearly his initiative, and it is certainly ill-advised. I think that should be added just for the record.

ASSEMBLYMAN BENNETT: Chris, I will go right to you in just one second.

I hope that this Committee, as it moves ahead with its inquiry and seeks solutions to the problems we have in the State, will recommit itself once again to moving ahead in a bipartisan manner, and that there is not, in fact, a Democratic solution, nor a Republican solution, to the cleanup in this State, but there is only the right solution, which is one that can only be reached by bipartisan efforts.

Mr. Administrator, I'm sorry. I just wanted to say that before I returned to you.

MR. DAGGETT: I would like to say a couple of things about the testimony. There were a number of charges made in that testimony about EPA, and I would be happy to answer each and every one of them, and will do so.

But, let me just make a few comments in general about the things that I took some notes on. First of all, EPA did not come to this table two years ago for the first time looking at Federal facilities. I indicated in my testimony that that was a high priority that I had assigned to it as Regional Administrator when I came on board, long before that Committee was first established. We were well under way in our efforts toward working on Federal facilities. It is a new program; it was a new program at the time. I was having to rob Peter to pay Paul to address it, because I have limited resources as well.

Frankly, I don't have any indication that there are any sites at Federal facilities that warrant some sort of an immediate hazardous -- or pose an immediate and substantial threat to the environment, such that I need to take some sort of emergency action, or direct additional resources away from areas where I feel there are more serious problems that ought to be addressed.

Secondly, you talked about us withholding data. I have not withheld any report of any kind in this agency since I came on board, nor will I ever withhold data. All the reports we have were made available to the Committee when it was first put together, and they have been made available to this Committee since it has been reconstituted.

The public has not been kept in the dark. About the BOMARC facility, when it first occurred 25 years ago, there were numerous newspaper accounts about that facility fire, and you can go back in the archives and find those. They are there. The fact that this Committee only found out about it three years ago was not because it was something that was kept in the dark. That was known; there were reports about it -- reports that were available. Have we found additional information since then? Yes. Have we been trying to get additional information through sampling? Absolutely. We are

working on that, and have been doing so. But, I would not characterize it as having people been kept in the dark.

You described it as the worst site in the country. I don't have any indication at all that the BOMARC facility is the worst site in the country. We don't rank our sites-- We rank our sites, I should say, by a number of factors. This certainly does not rank as the worst site in the country.

You talked about some documents that were not made available despite requests of EPA. I stand ready to answer that. I don't have the specific requests you are talking about, but if you would like to make that available to us, we will be happy to supply you with any documents you feel you are not getting from my office.

You talked about the fact that there is no plan for cleanup. As you well know, we have Interagency Agreements with Fort Dix. We are in the middle of a study to clean up that Fort Dix Landfill. To say that there are no plans for cleanup, I think, is really not fair to the process at all. There are a number of activities occurring at a number of these sites throughout the State. There is a complete defense priorities list planned -- published January, 1987 -- which lays out the Defense Department plan. There are a number of activities on these sites. I would by no means characterize it that we have no plan for cleanup activities.

You talked about 12,000 parts per billion of TCE at Picatinny. I wouldn't characterize that as something for the "Guinness Book of World Records." We have sites all over the country, and in this region as well, that have contaminants that are in excess of that. Are they high level? Certainly, they are higher than they should be. Should we address them? Yes. Are we addressing them? Yes, we are. We are taking every-- We are moving on every area where we can to address these questions you have raised.

Generally, I would say, for the most part, we are trying to drive this agency -- and address problems for the most part -- based on risk. Those areas that are the highest risk we address first to the degree we can, and where we are directed to do so by Congress. But, to characterize sites in ways using terms like "killer wastes" and "nightmarish threats" and "monster dumps," I don't think adds to the public debate. All it does, in my mind, is serve to further alarm the public unnecessarily. We are addressing these problems. They are problems that should not be turned away from, and we are not turning away from them. But, to characterize them in a way that further alarms the public unnecessarily, when there isn't a substantial and imminent threat to the health of the environment, I think, does not serve us well in this instance.

I think it is more important that we all work together on these things -- you, Assemblywoman, this Committee, the Federal government, EPA, and all the different agencies, as well as the State DEP -- and that we jointly address these problems in as firm and direct a way as possible, and that we do so expeditiously. I think the record stands that we have been doing that in the last three or four years at least, since we put these Federal facility programs together.

I would be happy -- as I said -- to answer any questions you raised in your testimony, and any others you may have. I would be happy to have you come to New York, or have our people come to New Jersey, to share with you any information we have. We have done it in the past, and we will continue to do so.

ASSEMBLYMAN SHINN: Mr. Chairman, I am really disappointed, and it is the first time since I have sat on this Committee that I have felt this way. This is not a partisan Committee. I think we deal with the issues on their merit. It is the first time I have had to sit-- It is added embarrassment to have to sit before the Region II EPA

Administrator and hear a 25-minute political statement being read before this Committee.

I was looking forward to having interaction on sites that are important in this State; to get updates on them. The result of this issue, as I have listened to a political statement for 25 minutes -- and Mr. Daggett has-- We have a quorum call at 12 o'clock, so we have lost an opportunity for serious exchange on serious problems.

I can only apologize to Mr. Daggett. I think we have to get back to the normal operation of this Committee and deal with issues on their merit on a nonpartisan basis, and the sooner the better.

ASSEMBLYMAN BENNETT: What I would like to do-- Mr. Daggett, I apologize for the time frame. I was under the impression -- and it may have been my misunderstanding -- that we were going to have a short summary. It was given to me that we were going to be spending five minutes on that.

As you are aware, I have a two-hour limitation on Committee meetings when I have them in the morning. As I said to you before we had the summary, I wanted to ask some specific questions on some sites. What I would like to do is ask you -- although I can already anticipate the answer-- For the record, I would like to ask if we may present to you, in writing, questions that may have been raised with respect to the testimony of Assemblywoman Kalik, or questions which we were prepared to pose today? May we submit those questions in writing, and will you be able to respond in writing so that we may have them as part of the record? Then, after we have had an opportunity to review your responses with the Department as we go through the Federal installations, if there comes a time when we may need members of your staff to appear for additional clarification, I would like to ask if we would be able to have that opportunity afforded to us?

MR. DAGGETT: Absolutely. We have done it in the past, as you know, and we will continue to do it.

ASSEMBLYMAN BENNETT: With respect to the sites specific, and going rather quickly, one of the overall concerns in the big scope, if you will-- Can you say that you are satisfied at this time that each of the Federal facilities has cooperated with furnishing you the data on their locations, that you feel is appropriate to be recieved by EPA? That is a very broad question.

MR. DAGGETT: I think it depends on the base. In some instances, we have had very good cooperation; in others, we haven't. It depends on a number of factors, ranging from the personality of the people involved all the way through the chain of command that we have spoken about earlier today, as to whether or not the base commander actually has control over that data. Those are the very sorts of questions that I intend to raise in my discussions -- as I indicated in my testimony -- with Carl Schafer, at the Department of Defense in Washington.

We plan to meet with him shortly. He has just come on with the new authority he has been given and the elevation of his position within the Department of Defense to the environmental aspects of military bases. I expect we will be able to identify some of these problems and work very cooperatively with him to overcome those problem areas where we are not getting data as quickly as we would like. Certainly, one of those examples is the BOMARC facility. The prospect of not getting some of that data until February, 1988 does not sit well with any of us. We will certainly address that question.

ASSEMBLYMAN BENNETT: Okay. With respect to the role the State has been afforded, the opportunity of participation, what role, if any, as far as a recommendation from you, do you feel the State would be able to play in gaining a greater accessibility to the information on these facilities?

MR. DAGGETT: I think we should continue to work with the State as we have, as with other Superfund sites. When I testified in the past before this Committee, I indicated that with Federal facilities we had not developed the kind of interaction and interrelationships with the State DEP that we had with our other Superfund sites that were not Federal facilities. Since that time, I think we have come a long way toward opening up those lines of communication. We are very much in a partnership with them. We share information with them, and they with us. I think that will continue to improve as we go through this process.

What I am saying is, we are trying to work very closely with them, and we will continue to do so and share all of our information.

ASSEMBLYMAN BENNETT: I am hopeful that as we move through this process we are going to confirm-- I have some concerns with respect to those facilities that have been less than candid and cooperative with us. I think the same ones which are not being cooperative with us, have not been cooperative with either the Department or yourselves. It raises very serious questions. But, as we have them come forward and give them an opportunity, I am hoping that we can reach a bottom line, and can, in fact, move toward a cooperative effort. It certainly should not-- I think one of the good words that you picked up on before was that you have to be a "noodge," which is sometimes very much the case. I think there are a lot of people in many different areas of the State who may consider this Committee to be a noodge in a lot of different areas.

But, while we have been very concerned and called upon the Department to give us input on the private facilities and sites in this State, both on the Superfund list and those not on the Superfund list, so too now have we expanded to say that we expect, request, and demand the same information be made

available to us on Federal facilities. I don't believe we can operate in a vacuum. I am not saying that the EPA is; don't misunderstand my statement. But, we cannot operate in a vacuum. We cannot go ahead and proceed to do our cleanups, to remove threats to the environment on private facilities, and not expect the Federal facilities to move ahead. With us working as partners giving the input-- The law is rather clear, I think, that while we may not be able to say which is right and which is wrong, we have to know what is going on. I think that is pretty clear. We have to move further than we have -- further than I have seen already.

I think this Committee looks forward to that ongoing exchange.

I would like to thank John Trela of DEP. At our last meeting, we posed certain written questions to DEP. It must be some sort of record breaking, but, John, I congratulate you. I have answers to every one of those questions. They go into sites specific. I am very pleased with that response. I will share those with all members of the Committee. I am hopeful that we can get our questions to you, Mr. Daggett, in the very near future, because we are scheduled for another meeting as we proceed in this on June 1. I think I am going to have to stay away from session days, because the time restraints are just too narrow.

I do appreciate your coming today. I thank you and your staff for their participation. I look forward to continuing to work with you on this as we move further into the investigation. Thank you.

ASSEMBLYMAN SMITH: Mr. Chairman?

ASSEMBLYMAN BENNETT: Yes.

ASSEMBLYMAN SMITH: A question for you.

ASSEMBLYMAN BENNETT: Oh, I'm sorry.

ASSEMBLYMAN SMITH: First, I thought your comment and Mr. Shinn's comment had some validity with respect to the time

allowed for Mr. Daggett and the Committee to have an interchange. I am wondering if it would be worthwhile to request that Mr. Daggett and the Region II people come back to a future meeting so we can have that dialogue. I think there are a series of questions people would like to ask him, and I think that would be valuable.

ASSEMBLYMAN BENNETT: Well, he said he would be available, and that his staff would be available.

ASSEMBLYMAN SMITH: Are you going to try to set up a meeting then?

ASSEMBLYMAN BENNETT: I would like to get the questions framed and posed to him -- as many as we can--

ASSEMBLYMAN SMITH: I have two quickies, if I could just lay them on him.

ASSEMBLYMAN BENNETT: Well, unfortunately, no. I have a bill to be called. I have two minutes left. I'm sorry, Bob, but that is where my problem is.

So, thank you, and thank you, Assemblywoman Kalik.

ASSEMBLYWOMAN KALIK: Thank you.

(MEETING CONCLUDED)

APPENDIX

8/5/85, cc GJT
Coy Bob Hughey
Don Deieso

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 26 1985

THE ADMINISTRATOR

85 0730 0145

Plutonium
file BOMARC
cc file Fed Facilities Clean-up (new)

Honorable Thomas H. Kean
Governor
State of New Jersey
Office of the Governor
Trenton, New Jersey 08625

Dear Governor Kean:

Thank you for your letter of July 9, 1985, regarding the BOMARC missile site at McGuire Air Force Base in Ocean County. You refer to the July 2, 1985, meeting with representatives of the Environmental Protection Agency (EPA) and the Department of Defense (DOD) at which the radiation contamination was discussed with the New Jersey Department of Environmental Protection (NJDEP). As a result of the meeting, your letter requests information regarding the exact location of contamination, all relevant environmental monitoring data, and the development of a cleanup plan. In addition, any information concerning similar situations in New Jersey was requested.

In response to your request, a meeting was held on July 16, 1985, in Trenton between representatives from the Air Force, NJDEP, and EPA's Regional Office in New York. The Air Force provided a background briefing and discussed their previous studies and efforts under the Installation Restoration Program. A commitment was also given to compile a complete list of all relevant information which can be disclosed. At the meeting, EPA provided information in our Regional files which consists of DOD installation reports and documents relating to the scoring of the site for potential inclusion on the National Priorities List. A list of these documents is enclosed with this letter.

We are working with DOD to address the other issues raised in your letter. Specifically, we asked DOD to review all Federal facilities in New Jersey to determine if any similar incidents have occurred or are likely to occur in the future. Furthermore, our Regional staff has been instructed to review all reports previously made available to EPA by DOD as part of our site assessment program to ensure that these reports have been forwarded in their entirety to NJDEP.

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Documents Relating to the Scoring of BOMARC Site for Inclusion on National Priorities List

1. "Installation Assessment of Fort Dix (BOMARC Site)" U.S. Army Toxic and Hazardous Materials Agency Report No. 108, March 1977 (two volumes). Volume II of this report includes DOD reports and correspondence dating from 1973.

2. "Installation Restoration of BOMARC Missile Site, Fort Dix" May 25, 1976. Memorandum

3. "McGuire Air Force Base, New Jersey Installation Restoration Program - Phase I - Records Search," prepared for United States Air Force by Engineering Science, Incorporated, November 1982.

4. "BOMARC Site Evaluation for Potential Well Contamination." Two reports (June 29, 1983 and June 1, 1984), prepared by the U.S. Army Environmental Hygiene Agency (Nos. 32-24-0401-83 and 32-24-0305-81).

5. "Fort Dix BOMARC Study for Hazard Ranking System." September 18, 1984.

6. McGuire Air Force Base, New Jersey "Installation Restoration Program - Phase II, Stage I Study," prepared for United States Air Force by Weston, Incorporated, October 1984.

7. "Summary Statement, McGuire Air Force Base, Wrightstown, New Jersey, Hazardous Ranking System," May 15, 1984.

USAFOEHL REPORT

86-034RA121ERD

RESULTS OF THE 1985 RADIOLOGICAL SURVEY AT FORT DIX BOMARC SITE NJ

EDWARD F. MAHER, MAJOR, USAF, BSC

JUNE 1986

Annual Report

See if we can send comments. Co-thesis for Heather

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Aerospace Medical Division (AFSC)
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REPORT DOCUMENTATION PAGE

1a REPORT SECURITY CLASSIFICATION Unclassified	1b RESTRICTIVE MARKINGS N/A
2a SECURITY CLASSIFICATION AUTHORITY N/A	3 DISTRIBUTION AVAILABILITY OF REPORT Distribution is unlimited; approved for public release
2b DECLASSIFICATION/DOWNGRADING SCHEDULE N/A	
4 PERFORMING ORGANIZATION REPORT NUMBER(S) USAFOEHL Report 86-034RA121ERD	5 MONITORING ORGANIZATION REPORT NUMBER(S) N/A
6a NAME OF PERFORMING ORGANIZATION USAF Occupational and Environmental Health Laboratory	6b OFFICE SYMBOL (If applicable) RZA
6c ADDRESS (City, State, and ZIP Code) Brooks AFB TX 78235-5501	7a NAME OF MONITORING ORGANIZATION N/A
	7b ADDRESS (City, State, and ZIP Code) N/A
8a NAME OF FUNDING/SPONSORING ORGANIZATION same as 6a	8b OFFICE SYMBOL (If applicable) N/A
8c ADDRESS (City, State, and ZIP Code)	9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
	10 SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO / PROJECT NO / TASK NO / WORK UNIT ACCESSION NO

11 TITLE (Include Security Classification)

Results of the 1985 Radiological Survey at the Fort Dix BOMARC Site, NJ

12 PERSONAL AUTHOR(S)

Maher, Edward, F., Maj, USAF, BSC Case, David, R., Lt Col, USAF, BSC

13a TYPE OF REPORT	13b TIME COVERED	14 DATE OF REPORT (Year, Month, Day)	15 PAGE COUNT
Annual	FROM _____ TO _____		

16 SUPPLEMENTARY NOTATION

17 COSATI CODES			18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	BOMARC Radiological Survey WATCH-DOG PLUTO Ft Dix Plutonium Environmental Radioactivity

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

This report documents the results of radiological surveys and environmental surveys and environmental sampling conducted during the annual Radiological Survey at the 1960 BOMARC accident site, Fort Dix, NJ. The surveys were performed by personnel from the Radiation Sciences Division, USAFOEHL, during 15-21 September 1985. The report concludes that the plutonium contamination appears to be still fixed under the reinforced concrete apron in front of the missile shelter. Little or no vertical movement of the plutonium has occurred in the soil since the accident. Significant plutonium contamination was not found outside the BOMARC site boundary. None of the off-site sampling locations exceeded the USEPA's proposed limits for transuranics in the uncontrolled environment.

20 DISTRIBUTION/AVAILABILITY OF ABSTRACT	21 ABSTRACT SECURITY CLASSIFICATION
☐ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☒ DTIC USERS	Unclassified
22a NAME OF RESPONSIBLE INDIVIDUAL Major Edward F. Maher	22b TELEPHONE (Include Area Code) (512) 536-3486
	22c OFFICE SYMBOL RZA

DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted SECURITY CLASSIFICATION OF THIS PAGE

ACKNOWLEDGMENTS

USAFOEHL extends its gratitude and appreciation to the various offices and individuals at McGuire AFB for their strong support and assistance during this survey. In particular, we thank the following persons for their participation in the survey and generous support: Col Sula, Base Commander; Lt Col Suzanne Phillips, Public Information Officer, Lts Matthew Smith and David Wannigman, MSgt Thomas Lanoue, SSgts Thomas Jordan and Kevin Midden, SrA Tonya Gibson, Amn Stephan Baffic, and Mrs Clarine Sawyer from the USAF Clinic Bioenvironmental Engineering Section; and Sgts Robert Hilliard and Diana Jordan, SrA Cor Fahringer and John Boscoe, A1Cs George Jump, Michael Schnars, Phil Davis and Judithe Metcalf, and Amn Craig Stevenson of the USAF Clinic Environmental Health Office. We also extend our sincere thanks to all those who supported the USAFOEHL team, but whose names may have escaped our attention.

TABLE OF CONTENTS

6X

LIST OF ILLUSTRATIONS

I. INTRODUCTION

A. During 15-21 September 1985, personnel from the Radiation Services Division of the USAF Occupational and Environmental Health Laboratory (USAFOEHL/RZ) conducted the annual radiological survey of the Fort Dix BOMARC Site, New Jersey. Periodic environmental monitoring on and around the BOMARC site has been ongoing since 1975 as part of the Air Force's program to maintain the deactivated site and to monitor the residual plutonium left as a result of the BOMARC missile fire in 1960.

B. The periodic environmental monitoring plan for this installation was implemented in 1975 at the direction of the USAF Surgeon General (re: HQ USAF/SGPP Ltr, 12 Jun 73) under the operations plan entitled "WATCH-DOG PLUTO". Since then, radiological site surveys have been completed in 1976, 1978, 1979, 1981, 1982, 1983, 1984, and 1985. This report contains the results of the 1985 site survey, observations, sample analyses, interpretations, and recommendations for future surveillance.

II. BACKGROUND

A. On 7 June 1960, an explosion and fire erupted in BOMARC missile launch shelter No. 204 of the now-deactivated 46th Air Defense Missile Squadron (ADMS), located on the Fort Dix Military Reservation, New Jersey. The missile and its nuclear warhead were consumed in the intense fire. As part of the firefighting activities, copious amounts of water were used to control the fire and to prevent it from spreading to any of the other 84 missile shelters in the complex. As a result, a yet unknown portion of the warhead's fissile material (plutonium) was flushed from inside the shelter and either contaminated the soil and asphalt in front of shelter 204, or was washed down the asphalt ramp into a drainage ditch (re: Figure 1). The precise amount of plutonium contained in the missile warhead remains classified to this day and will not be mentioned in this report.

B. The drainage ditch runs southerly from shelter 204, paralleling the site boundary fence for several hundred feet before entering an underground culvert, and crossing underneath County Highway 539. From this point the culvert opens into a sandy ditch that eventually flattens into a heavily wooded area across the highway. A third, but unlikely, possibility for the fate of the fissile material is that a portion of it might have been carried aloft in the fire and dispersed downwind (SSW) of the BOMARC site. The rationale that this possibility is unlikely will be discussed in Section IV.E of this report.

C. About one year after the accident, four inches of reinforced concrete were poured over the asphalt apron in front of missile shelter 204 in an effort to "fix" the plutonium contamination under a protective overburden. In addition to this, two inches of asphalt were placed along the bottom of the drainage ditch located inside the site boundary fence. Early radiological surveys in 1970-1973, conducted by USAFOEHL's predecessor, the USAF Radiological Health Laboratory (USAFRHL), have shown most of the plutonium is under the concrete pad in front of the shelter or in the uncovered grassy areas

adjacent to launch shelters 201-206. These areas have been the sites of highest contamination (10.0-120 $\mu Ci/m^2$). Vertical Pu-239 profiles in the soil near bordering edges of the concrete, conducted in 1975, indicated that the plutonium contamination was contained within the top 6-8 inches of soil (1). In addition to the above areas, lesser amounts are detectable along the entire length of the drainage ditch inside the boundary fence (< 0.5 $\mu Ci/m^2$).

D. Off-site, in uncontrolled locations on both sides of Highway 539, most of the contamination has been well below the U.S. Environmental Protection Agency's (USEPA) proposed "screening level" for limiting the public's exposure to transuranics of 0.2 microcuries per square meter (0.2 $\mu Ci/m^2$) (2). At the few off-site locations that have in the past been found to exceed the proposed "screening level", there has not emerged an apparent trend of either decreasing or increasing plutonium soil contamination. A 10-year summary of the Pu-239 levels measured on and off the BOMARC site and trend analysis, as well as an interpretation of the results have been recently published in USAFOEHL Report 85-151RZ121JRD (3).

E. Although soil sampling and instrument surveys at the BOMARC site have been extensive over the past ten years, ground or surface water monitoring for plutonium has been minimal. Renewed concerns for the site by New Jersey State officials have recently elevated the issues of plutonium contamination of local hydrogeological units. A second State concern had to do with the downwind airborne dispersion of plutonium from the site during the 1960 incident, and the residual contamination currently present in these downwind areas. In response, the USAF Surgeon General tasked USAFOEHL to expand its monitoring efforts on and off the site to: (1) determine the impact of the plutonium contamination on local groundwater supplies and on the major hydrogeological formations in the region; and (2) make preliminary predictions of the expected airborne Pu-239 concentrations and ground contamination levels downwind at the time of the incident.

F. Both of these State concerns have been responded to through preliminary assessments conducted by USAFOEHL for HQ MAC/SGPB during October and November 1985 (4,5). The results of these groundwater measurements and air dispersion modeling are repeated in this report. In addition, the 1985 survey incorporated 15 new sampling locations as far away as 10 miles downwind from the accident site. Most of these new sample sites were located inside and about the artillery impact areas of the Fort Dix Reservation and along Routes 70 and 539.

III. SURVEY METHODS AND PROCEDURES:

A. **Instrumental Monitoring:** The entire BOMARC site and areas immediate to the site boundary were extensively surveyed using FIDLER (field instrumentation for the detection of low energy radiation) instrumentation. (The FIDLER, consisting of a scintillation probe (5 in diameter x 1/8 in thick NaI[Tl]) in combination with an Eberline Instrument Corporation (model PRM-5) survey meter, was used to record the external radiation count rate at the grid locations shown in Figures 1 and 2.) The gross count rate data were collected at high voltage settings (windows) optimized for 17, 60, and 90 keV photons.

The former two energies represent x-ray energies from Am-241, which is a signature for the presence of plutonium. The latter energy represents a broad-average energy for natural background radiation. The gross count rate data were corrected for background radiation and various calibration factors, and then converted to plutonium areal density expressed as microcuries per square meter of soil ($\mu Ci/m^2$).

B. **Soil Samples:** Representative soil samples were collected from on-site and off-site areas shown on Figures 3, 4 and 7, respectively. The samples were collected by taking eight core samples (3" diameter by 8" deep) in a four-point "cross" pattern at a distance of 15 and 30 feet from the center of each sampling site. A single site collection resulted in approximately 6 Kg of soil. Upon arrival at the Laboratory, each soil sample was dryed, blended, and homogenized prior to being processed for counting. All soil samples were first analyzed for gamma-emitting radionuclides using high-resolution (GeLi) gamma spectroscopy. The counting configuration consisted of a homogeneous sample sealed in an aluminum can (8 cm diameter x 3 cm deep) centered inside a 600 ml Martinelli Beaker. Secondly, approximately 10 grams of each soil sample were radiochemically processed for plutonium isotopes and analyzed by high-resolution alpha spectrometry. The radiochemical procedures called for the dissolution of the 10 grams with a series of strong acids (nitric, hydrofluoric, and hydrochloric), extraction of the plutonium using a resin column, and electroplating the residual on a stainless steel planchet (6). Transfer efficiencies for the method were determined to be better than 40% using a radioisotopic tracer of plutonium-242. New Jersey Department of Environmental Protection (NJDEP) employees duplicated about 10% of all soil samples. Split samples were sent to NJDEP upon completion of the soil blending at USAFOEHL.

C. **Water Samples:** The 1985 annual survey included water analysis for plutonium concentrations in numerous on- and off-site locations. This included well water samples from nearby private residences and several Government-owned wells on the site or on adjacent installations (re: Figure 6). All these sample results were reported in an earlier USAFOEHL letter to HQ MAC/SGPB, dated 31 Oct 85 (4). An additional 11 water samples were collected from off-site locations shown in Figure 7. These samples comprised a representative survey of surface and well waters that were downwind from the BOMARC complex during the missile fire. Water samples were collected in 1-gallon collapsible plastic containers and stored without preservation until analyzed. Gross alpha concentrations were measured by evaporating a 200 ml volume of acidified water on a 2-inch stainless steel planchet and counting the residue in a windowless gas-flow proportional counter. Plutonium concentration was determined by coprecipitation with alkaline earth phosphates in a one liter sample. Plutonium was extracted using an ion exchange resin column, electrodeposited onto a 10 mm stainless steel planchet and counted using an alpha particle spectrometer (7,8). The minimum detectable activity for Pu-239 was generally less than 0.01 picocuries per liter.

D. **Vertical Pu-239 Profiles in Soil:** Four soil sampling sites were selected to study Pu-239 concentrations as a function of soil depth. These samplings were useful in determining the vertical profile of plutonium in the soil as an indicator of the extent of the downward migration of plutonium compounds. Vertical distributions were measured at one-inch depth intervals

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from the surface down to one foot. One additional sample was collected at a depth of two feet. The four locations chosen for vertical distribution measurements included site numbers 107, 107A, and KO8" (see: Figure 4?, and a final sample from a site of high contamination adjacent to the burned-out missile shelter 204. The latter is referred to as the "Bunker" site. The samples were collected by digging a rectangular trench approximately 4 feet long by 2 feet wide down to a depth just beyond two feet. Vertical samples were taken from the walls of the trench using a 4" wide by 1" high rectangular coring shovel. Approximately 1 kg of soil was collected at each level. Great care was taken during the sampling to preclude contaminating lower levels with soil from above. These soil samples were processed and analyzed in the same manner as described above for the other soil samples.

E. **Air Dispersion Modeling:** Preliminary estimates of the downwind dispersion of plutonium that might have occurred during the accident were conducted in November 1985 and reported to HQ MAC/SGPB in a letter dated 22 Nov 85 (5). The approach taken was to use a relatively simple Gaussian dispersion model (9) with the available meteorological data at the time of the accident, assuming worst case conditions, to predict the plume touchdown points downwind. The assumptions and data used in the modeling effort were: the local winds were from the NNE at 3-8 knots (1.2-3.1 m/s); and the plume release height was between 50 and 400 feet (15-122 m). The dispersion modeling was conducted using the "A" and "C" Pasquill atmospheric stability classifications, which are typical of late afternoon conditions. Class "A" represents extremely unstable conditions (high vertical mixing) and the "worst case" conditions, whereas class "C" typifies slightly unstable atmospheric conditions (low vertical mixing). The modeling did not attempt to estimate downwind air concentrations since this would have required a suitable source term for the plutonium release, which still remains classified for national security reasons.

IV. RESULTS AND OBSERVATIONS

A. FIDLER Survey

1. The FIDLER survey measurements for plutonium areal density ($\mu Ci/m^2$) across the BOMARC site are given in Table 1. The grid measurement identifiers, i.e., column letter and row number for a particular measurement site refer to either Figure 1 or 2. Figure 2 denotes the locations of the intensified grid measurements conducted over the reinforced concrete slab and inside the highly contaminated area surrounded by the concertina wire. (Gross FIDLER counts [uncorrected] are given in Appendix B.) The results in Table 1 give either the estimated Pu-239 aerial density along with the coefficient of variation for the estimate (%), or the minimum detectable areal density (MDAD). The latter is presented when the levels were low and statistically unreliable. The proper interpretation of the "less than MDAD" value is that there is a 95% probability that the true areal density is less than the stated MDAD.

2. As expected, the highest plutonium areal densities were found over the concrete slab in front of the burned-out missile shelter and in the

adjacent grassy spits. The vast majority of the measurement points outside of the immediate accident shelter and concrete were too low to be reliability measured using hand-held instrumentation. The MDAD levels were all above the USEPA's "screening level;" for transuranics (0.2 μCi/m²), consequently, the FIDLER data are useful only in defining areas of relatively high plutonium contamination. A comparison of the 1985 FIDLER data with that of previous years indicates no substantial differences over what has been measured before (3).

B. Soil Samples

1. On-Site Levels

a. Results of the soil core samples for plutonium concentrations for the on-site locations (re: Figure 3) are summarized in Figure 5. A comparison of these results with those of past years (1975-1984) is given in Appendix A. The 1985 gamma spectroscopy results for these same locations are tabulated in Table 7. Appendix A lists the soil plutonium levels in terms of activity per gram of dried soil and areal density (μCi/m²). The latter units allow for a direct comparison with the proposed (0.2 μCi/m²) "screening level."

b. The soil sample points that exceed 0.2 μCi/m² included several near the launch shelters (sites 164, 166, 167, and 174), as well as sites next to the asphalt ditch and well inside the boundary fence (sites 172, 173, and 181). These results were not surprising since each had shown elevated levels in past years and were nearest to the burned-out launch shelter or adjacent to the drainage ditch which carried firefighting water runoff. Comparison to previous results show considerable variability, but each at one time or another exceeded 0.1 μCi/m².

c. One sample point (site 118), located between the boundary fence and highway 539, was measured at 0.226 μCi/m². This site exceeded the screening limit once before in 1983. Adjacent site numbers 116 and 127 have also exceeded the screening level in past years (1976-1981), but have since been below this level. All three points were directly downwind during the accident and may have been fumigated by the fire plume. These results, despite their annual variability, are consistent with past years findings and no trends have developed in the plutonium concentrations.

d. Areal densities in all other on-site locations were below 0.2 μCi/m² and relatively unchanged from previous surveys. There has been no evidence of plutonium soil contamination outside of the fenced boundaries to the north, east, or south of the BOMARC complex (sites 134-158). Soil results to the west side of the complex have been erratic, but show some plutonium contamination, particularly at the site numbers mentioned above. The fact that this side of the complex was downwind during the accident may be partly responsible; however, the fact that the firefighting water runoff flowed in this general direction is perhaps the most significant factor in the observed soil concentrations.

2. Ditch Runoff Area

a. Radiological data for the ditch runoff sampling points are also shown in Table 7 and Appendix A. Figure 4 is a larger scale diagram of the ditch runoff area and can be used to reference the exact locations of the sample site numbers. Plutonium areal densities measured in 1985 are depicted in Figure 6.

b. Besides the few on-site points discussed above, the most significant plutonium contamination has been found in the runoff ditch area across from highway 539. Most notably, sites 107, 107A, and 109 have been well characterized as having been consistently above 0.1 $\mu Ci/m^2$ during past surveys. The area was first identified as having elevated plutonium by an aerial survey in 1973. Areal densities for these three points have varied close to three orders of magnitude over the ten years of sampling (0.00--1.33 $\mu Ci/m^2$) with no apparent trend. We believe that the ditch and its lower level runoff area to the woods received the majority of the firefighting water runoff. The area continues to receive the greatest amount of the rainfall runoff from the complex today and is a low point in the local topology. The 1985 soil results confirmed that this area remains elevated (all three were approximately 0.5 $\mu Ci/m^2$) and deserve closer attention in future surveys. Sites 107 and 107A were selected for measurement for the vertical distribution of plutonium. These results are discussed in Section IV.D of this report.

c. Sites 205-216, located at the far end of the runoff ditch and to either side, were not sampled in 1985. This general area will be extensively sampled in future surveys to determine the distribution of plutonium, both horizontally and vertically. Earlier surveys have shown areal densities in this area to be much less than the screening level, although its proximity to areas containing elevated plutonium causes it to be worth a closer look.

3. Off-Site Soil Samples

a. Soil concentrations for gamma emitting and plutonium radionuclides at the eleven off-site locations are shown in Table 4. The site number locations are given in Figure 7. These sample points were all downwind during the missile accident and were of interest with regard to the aerial dispersion modeling. Their distances from the BOMARC complex ranged form 0.6 to about 15 kilometers in a general south-southwesterly direction.

b. All but one site (Range Control) had plutonium concentrations within the range of normal background (< 0.007 $\mu Ci/m^2$). The slightly elevated plutonium level at the Fort Dix Range Control (0.11 $\mu Ci/m^2$) was unexpected, but still did not exceed the 0.2 $\mu Ci/m^2$ level. The reason for this result is unclear; however, given the site's distance from the BOMARC complex (9 kilometers) and the absence of elevated plutonium in adjacent locations, it is unlikely that the contamination was due to the missile accident. Laboratory cross-sample contamination is one possible explanation; this is supported by the fact that the plutonium was unaccompanied by Am-241. A second sample will be analyzed at a later date to resolve the discrepancy. Other radionuclides present in the samples consisted of normal background concentrations of naturally occurring species of the primordial uranium and thorium decay series

members. The cesium-137 concentrations, although not naturally occurring, were probably the result of rainfall washout from 1950-1960 nuclear weapon atmospheric testing. None of these levels pose a health threat and are consistent with data at other locations in the United States.

C. Water Sampling

1. Residential Wells: Results of the gross alpha and plutonium measurements in the residential well samples are shown in Table 2. The samples were collected from tap water at seven private residences within 1-3 miles of the BOMARC complex. Gross alpha particle radioactivity for all seven satisfied the USEPA's Safe Drinking Water Act limits and no measurable plutonium was found.

2. Government Wells: Gross alpha and plutonium concentrations in all the government wells sampled met drinking water standards (< 5 pCi/liter). Plutonium concentrations were less than detectable limits. The results of these analyses are shown in Table 5. The sample locations included two wells in the BOMARC complex; the remaining site locations were on Lakehurst Naval Air Station as shown on Figure 8.

3. Off-Site Locations: Water samples were collected on most of the same sites as the off-site soil samples. Since these points were downwind at the time of the accident and included large lakes and wells tied to the local aquifers, their measurement was deemed important to determining if plutonium contamination was present in the major hydrogeologic units. Gross alpha and plutonium concentrations for these samples are given in Table 3. Sample locations are shown on Figure 7 and referenced to the same site numbering scheme as was used for Table 4. Again, all sample results satisfied gross alpha particle ratioactivity limits of the USEPA and the plutonium concentrations were below detectable limits.

D. Plutonium Vertical Soil Distributions

1. Sites 107 and 107A: Vertical profiles of the Pu-239 distribution in these soil sites are shown in Figures 9 and 10 and supported by Table 6. Both sites were located in the center of the runoff ditch across highway 539; site 107A being less than 100 feet more distal from the road and in the widening section of the ditch (re: Figure 4). The plutonium vertical profiles for the two sites were quite dissimilar; the possible reason is discussed later. The vertical distribution of site 107 appeared to be relatively uniform with depth. Although the 24-inch level had the greatest plutonium concentration (0.55 pCi/g), most of the other levels were smaller only by a factor of two or less. Given the statistical uncertainty of the sampling method, differences of this factor can generally be expected even in samples that are known to be homogeneous. Vertical distribution at site 107A, on the other hand, was extremely nonuniform and 99% of the measured plutonium was found in the first 3 inches below the surface; 80% within the first inch. These differences are difficult to explain, particularly when the sites are separated by only 100 feet. Based purely on speculation, it is believed that the amount of silt that deposits over these sites is very different and may be responsible for the dissimilar vertical distributions. Site 107,

because it is located in the narrow portion of the ditch should experience a more rapid build-up of silt from the rainwater runoff from the BOMARC complex. The runoff will contain a relatively low, but steady concentration of plutonium compounds from the complex that deposits uniformly (continuously) on the bottom of the ditch. Because of plutonium's low solubility, once deposited it is unlikely to be removed. Thus, the vertical distribution at site 107 may be the result of successive overlays of plutonium containing silt from above, rather than a migration of plutonium downward. A similar action also takes place over site 107A; however, there are several important differences. Because of the greater width of the ditch, larger overflow area, as well as less silt being available due to upstream deposits, it is expected that silt build-up at site 107A would be a considerably slower process, and that perhaps only 2-3 inches of plutonium containing silt could have been deposited over the 25 years since the accident. Though speculative, this explanation is pausible enough to explain these differences in the vertical distribution of plutonium between the two sites. Additional annual samplings will be needed to verify or refute this theory.

2. Site K0671: This site was also located in the runoff ditch, but on the opposite side of the highway from site 107 and 107A. Results of the vertical distribution measurements for plutonium are depicted in Figure 11 and summarized in Table 6. The vertical distribution of this site was very similar to that of site 107, i.e., relatively uniform plutonium concentrations with depth. Because the physical characteristics of these two sites are basically identical, the reason for the uniform distribution is believed to be the same as discussed above. This site had not been sampled prior to 1985, and therefore no data are available to compare the results with. Samples from this site were split with the New Jersey Department of Environmental Protection (NJDEP).

3. Bunker Site: The final vertical distribution sampling point was selected in an uncovered grassy area near the burned-out missile shelter. Vertical sampling results for this site are shown in Figure 12 and Table 6. The samples taken from this area were highly contaminated (> 100 nCi/g) and therefore extreme care and protective equipment were required to prevent contamination of personnel and equipment. All bunker samples for plutonium were measured using gamma spectroscopy because of the high potential for contaminating the alpha spectrometry detectors and/or laboratory personnel. The vertical distribution of plutonium was found to rapidly decrease with increasing depth. Essentially, all of the plutonium was located within the first 6 inches of soil. This observation is consistent with that of the 1973 vertical measurements and supports the conclusion that the plutonium compounds on-site were very insoluble and were not migrating downward.

E. Aerial Dispersion Modeling

1. The analyses of the aerial dispersion modeling is summarized in Table 8 and were extracted from reference 9. The results suggest that the touchdown of the plume probably occurred between 0.01 and 0.1 kilometers from the missile shelter within compass headings between 187 and 212 degrees (re: Figure 13). Although airborne concentrations and ground deposition figures were not estimated for security reasons, this sector provides a reasonable boundary for the areas that should be sampled in future surveys.

2. Results of the plutonium soil concentrations in the sectored area of Figure 13 were negative, as discussed earlier, baring the range control soil sample (off-site 11) where the elevated plutonium concentration was believed to be a laboratory artifact.

V. CONCLUSIONS AND RECOMMENDATIONS

A. The potable and nonpotable water supplies tested during the 1985 annual survey do not indicate that the local hydrogeologic units have been contaminated by the release or migration of plutonium that resulted during or since the missile fire.

B. Results of the soil samples on and adjacent to the BOMARC complex are not substantially different from the results of previous year's surveys. Areas known to have elevated plutonium areal densities were, by and large, confirmed. Despite the annual variations that typify some sampling locations, there is no evidence to suggest that large scale plutonium migration is occurring. The bulk of the plutonium compounds released remain fixed under the reinforced concrete slab in front of the missile shelter. Instrument surveys supported the soil sample results in the higher contaminated missile shelter areas.

C. Runoff rains from the missile shelter area into the drainage ditch, passing underneath the highway may carry low levels of plutonium compounds into the ditch and outflow areas on the other side of Highway 539. The extent to which this is happening has not been quantified, except to note that plutonium concentrations on the soil surface have not changed much over a ten year period. Vertical distribution measurements for plutonium at two points in the ditch show a relatively uniform vertical distribution. This is consistent with the theory that minute amounts of plutonium are continually being deposited at the bottom of the ditch and over the outflow areas. This phenomenon needs to be investigated more thoroughly before a definitive conclusion can be reached.

D. The USAFOEHL should continue to monitor the site annually for the migration of plutonium as evidence of continued USAF responsibility for the area. The survey protocol should consist of the following:

1. Soil sampling at selected sites on and off the BOMARC complex with increased emphasis on the sites between the missile shelters and Highway 539, the runoff ditch across the highway, and off-site points within the sectored area of Figure 13. Vertical distribution sampling for plutonium needs to be expanded to include more sample sites between the complex boundary and outflow areas. Less emphasis should be directed at soil sampling on the north, east, and south boundaries since significant contamination has never been measured at these locations. All future measurements should be reported in units that can be compared directly with the USEPA proposed "screening level" for transuranics, i.e., 0.2 pCi/m^2.

2. Water sampling at the seven sites on the BOMARC complex and Lakehurst Naval Air Station, as well as the ten off-site locations added

during the 1985 survey should be performed annually to detect the impact of the plutonium, if any, on the groundwater. The sampling of potable water from the residences adjacent to the Fort Dix boundary should be offered annually on a courtesy basis. Furthermore, it has been recommended that six additional shallow wells be installed into the Cohansey sand under the Air Force's Installation Restoration Program (IRP). These added surveillance wells will be useful in establishing water table depths, vertical and horizontal flow directions, and as providing additional plutonium monitoring sites around the BOMARC complex. Cm

3. Instrument (FIDLER) surveys should continue on an annual basis, but be limited to the missile shelter grounds which are surrounded by concertina wire. The MDAD of the FIDLER is too high to permit comparison of the plutonium areal densities in most areas with the USEPA screening level for transuranics of 0.2 $\mu Ci/m^2$.

E. The BOMARC complex should be visually inspected quarterly by the McGuire AFB Radiation Protection Officer and Environmental Coordinator to ascertain the site's condition and to identify any potential loss of containment. Particular attention should be given to the expansion joints in the concrete containment slab and concertina wire fence. The expansion joints should remain sealed and free of vegetation. Civil Engineering should be contacted to repair any loss of integrity in either the concertina fence or site boundaries.

REFERENCES

1. USAF RHL Operations Plan "WATCH-DOG PLUTO," 12 September 1973.

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3. USAFOEHL Report 85-151RD121JRD, "Results of Radiological Surveys 1975-195- at Fort Dix BOMARC Site NJ", August 1985.

4. USAFOEHL Letter to HQ MAC/SGPB, Subject: Evaluation of Plutonium Contamination on Groundwater, BOMARC Site, Fort Dix NJ, 31 October 1985.

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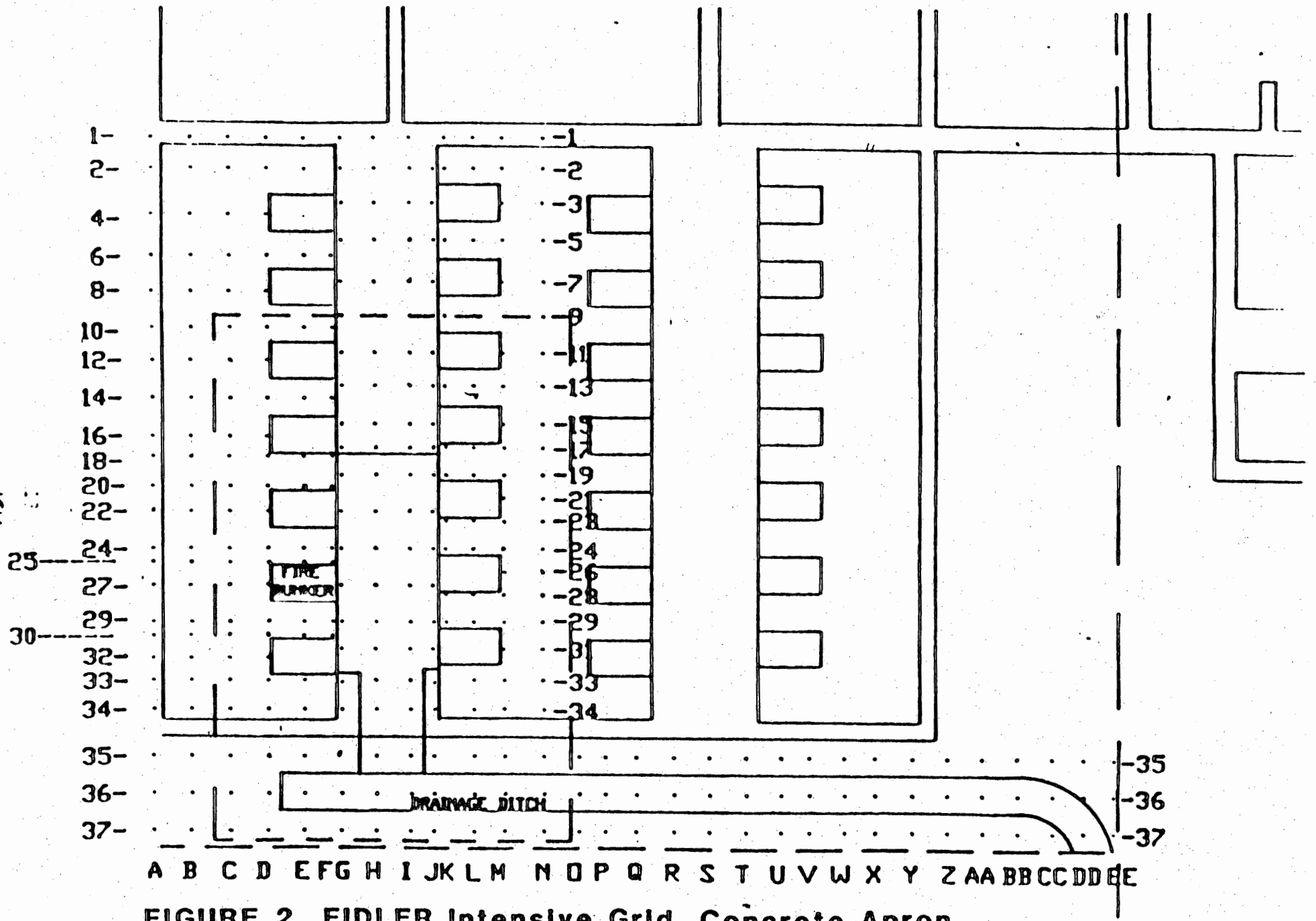
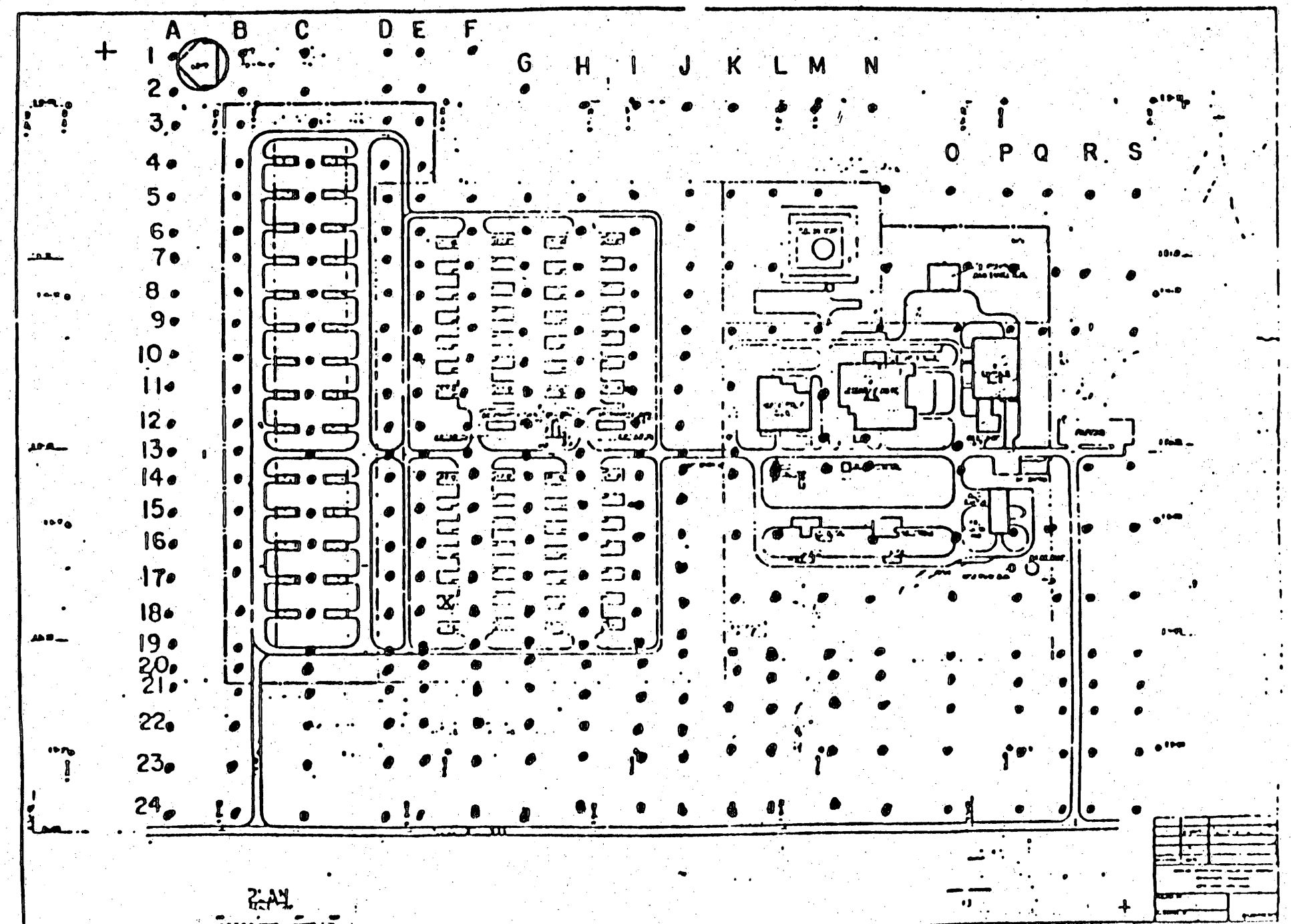


FIGURE 2 FIDLER Intensive Grid, Concrete Apron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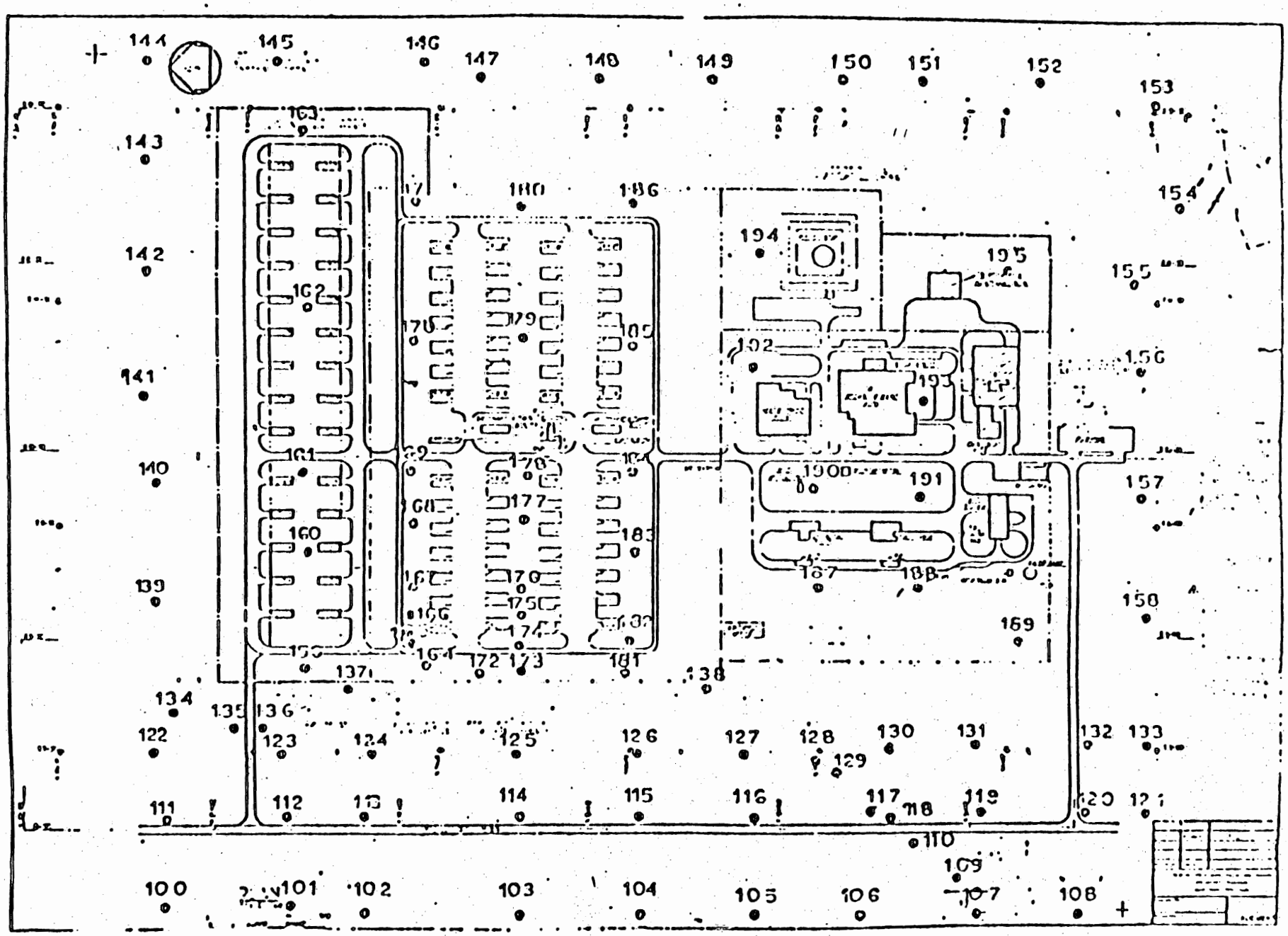
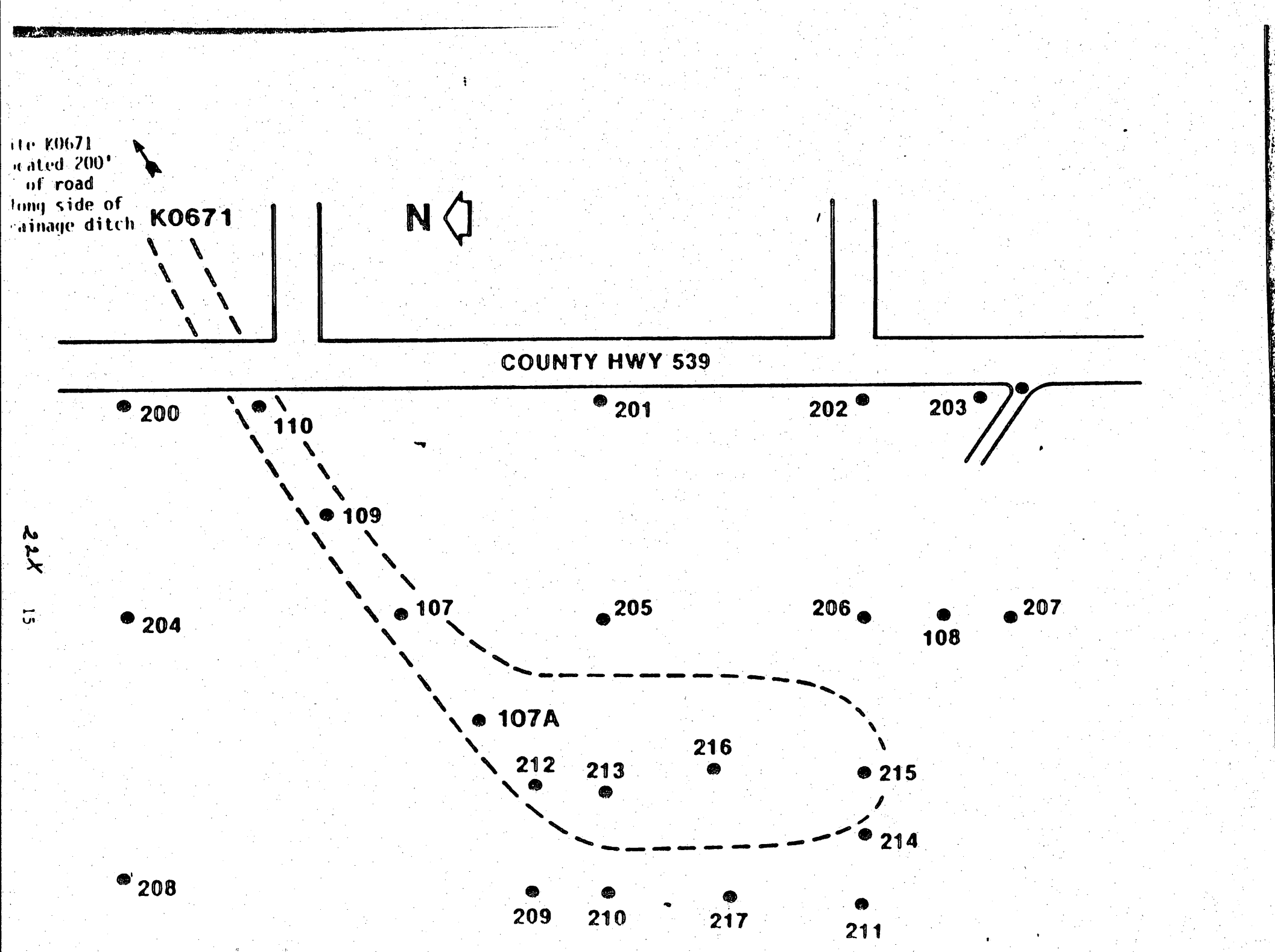


FIGURE 3 Soil Sampling Sites, BOMARC Site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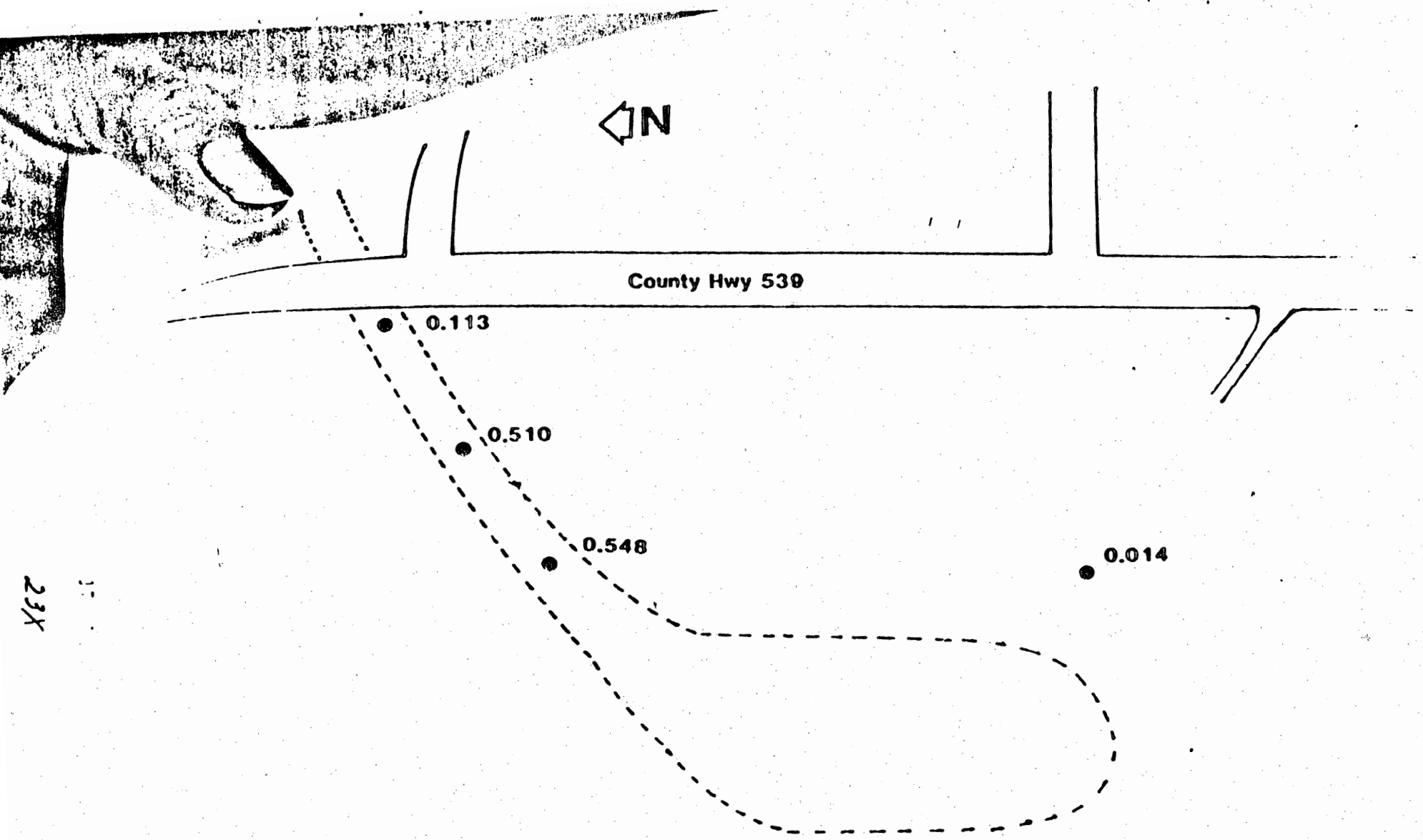


Figure 6. 1985 $Pu^{239,240}$ Soil Concentrations

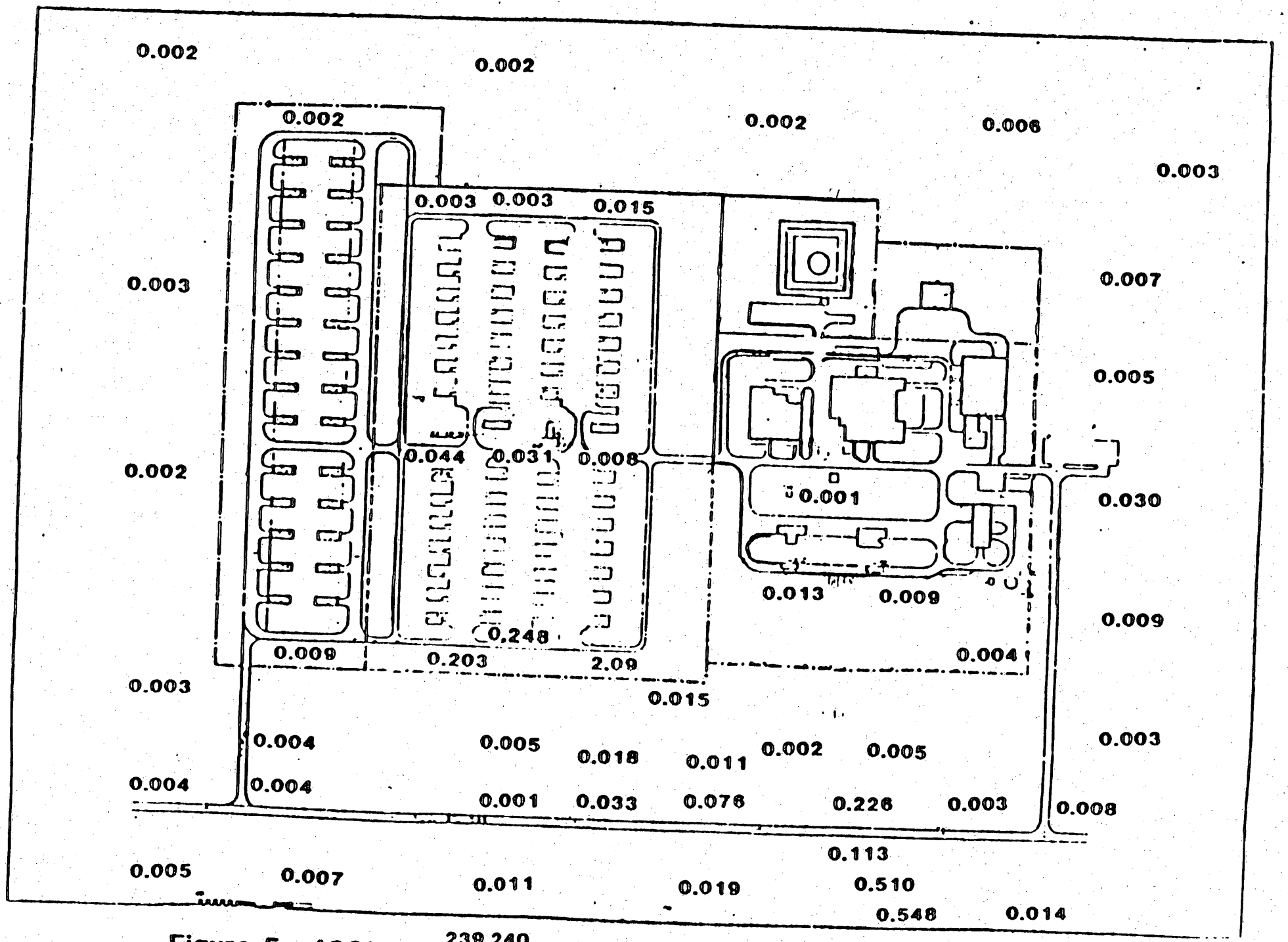


Figure 5. 1985 Pu ^{239,240} Soil Concentrations ($\mu Ci/m^2$)

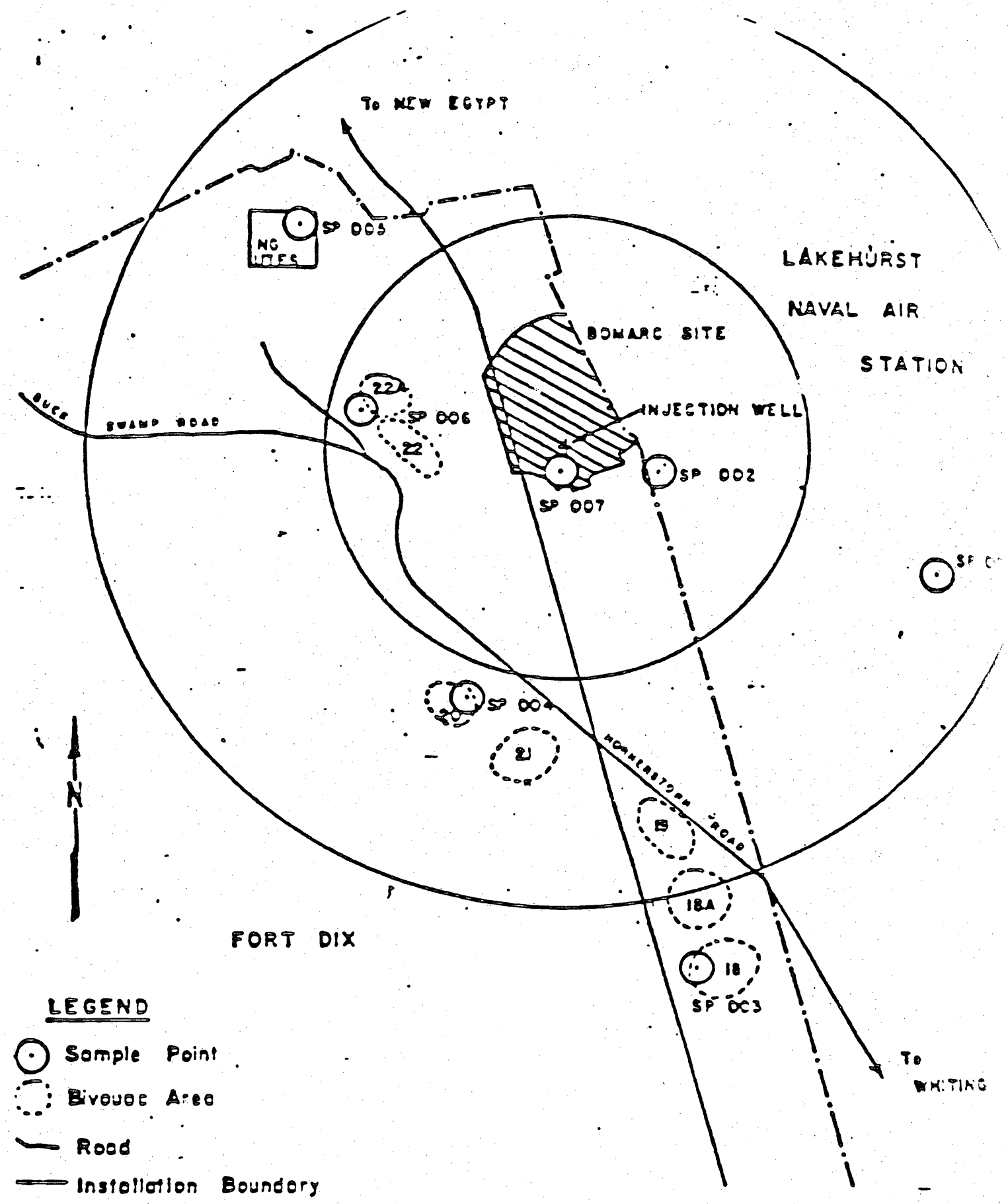
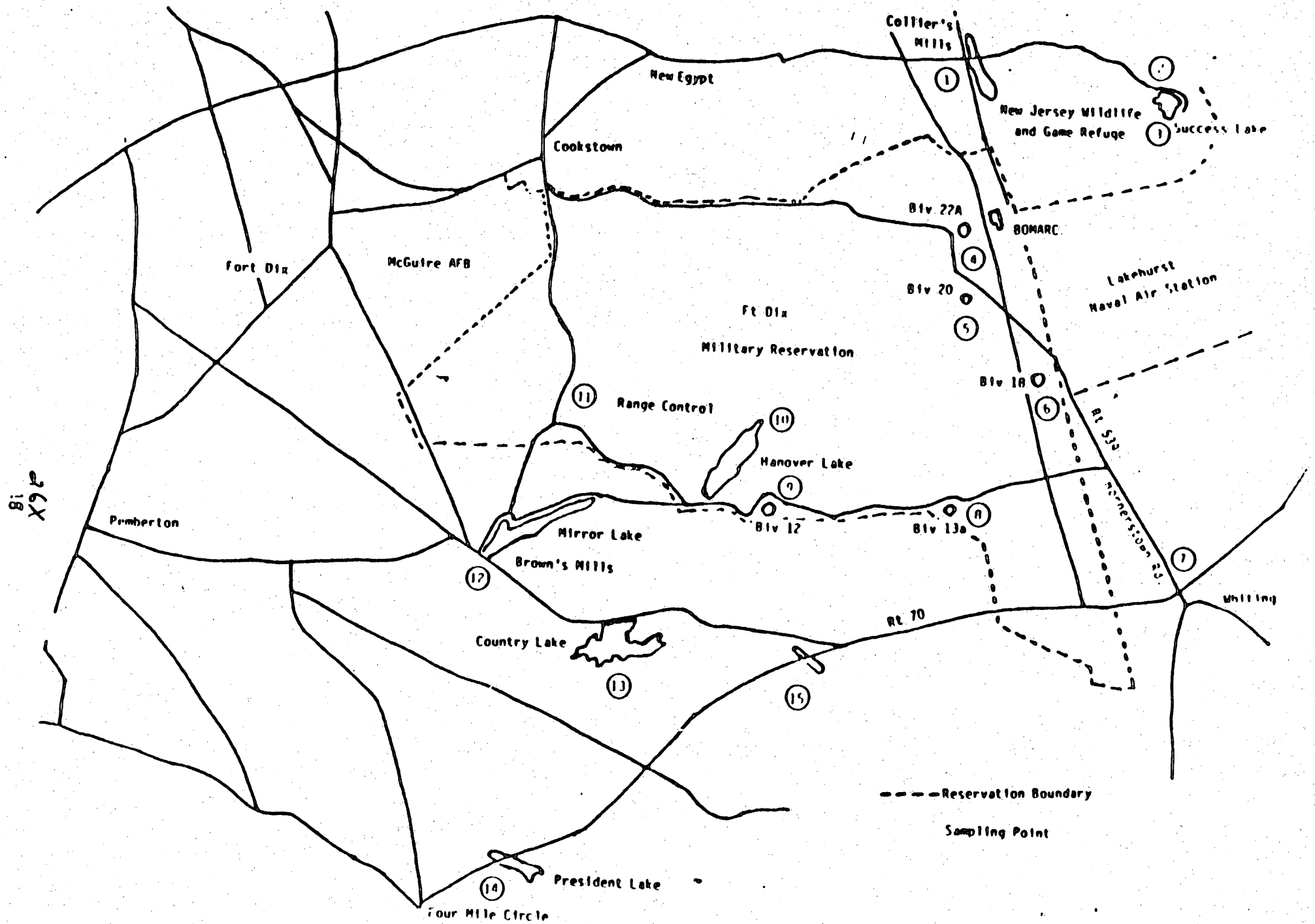


FIGURE 8 1985 Government Well Sampling Sites


Collier's Mills
New Egypt
Cookstown
New Jersey Wildlife and Game Refuge
Success Lake
BOMARC
Blv 22A
Blv 20
Blv 18
Fort Dix
McGuire AFB
Ft Dix
Military Reservation
Lakehurst Naval Air Station
Range Control
Hanover Lake
Rt 539
Pemberton
Mirror Lake
Brown's Mills
Blv 12
Blv 13a
Tomerson Rd.
Whiting
Rt 70
Country Lake
President Lake
Four Mile Circle
Reservation Boundary
Sampling Point

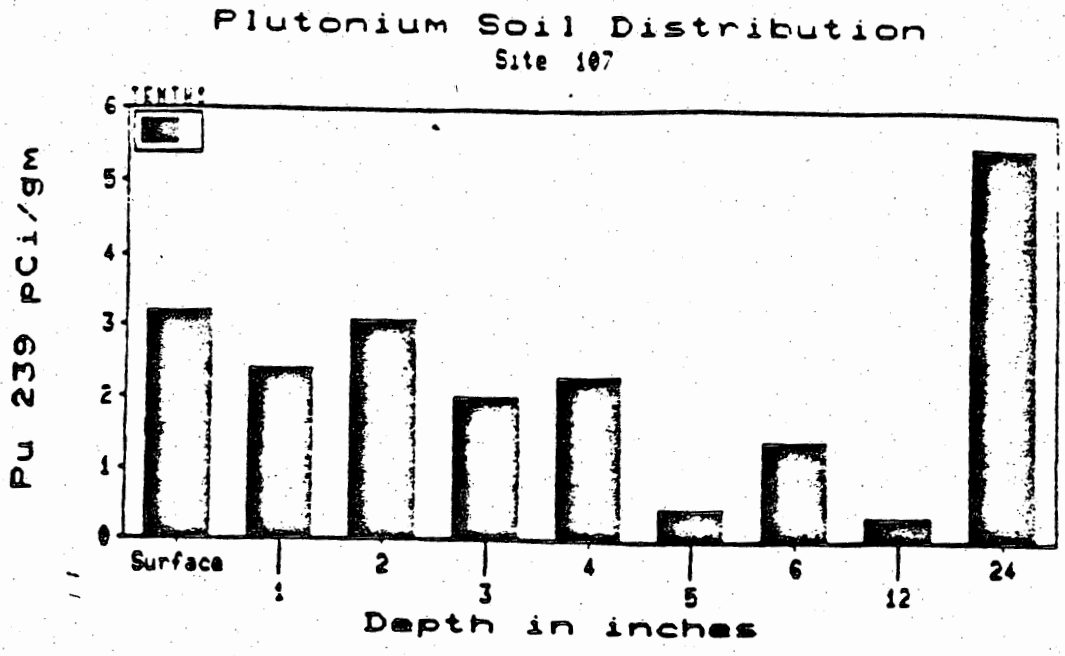


Figure 9: Vertical Pu-239 Soil Distribution, Site 107

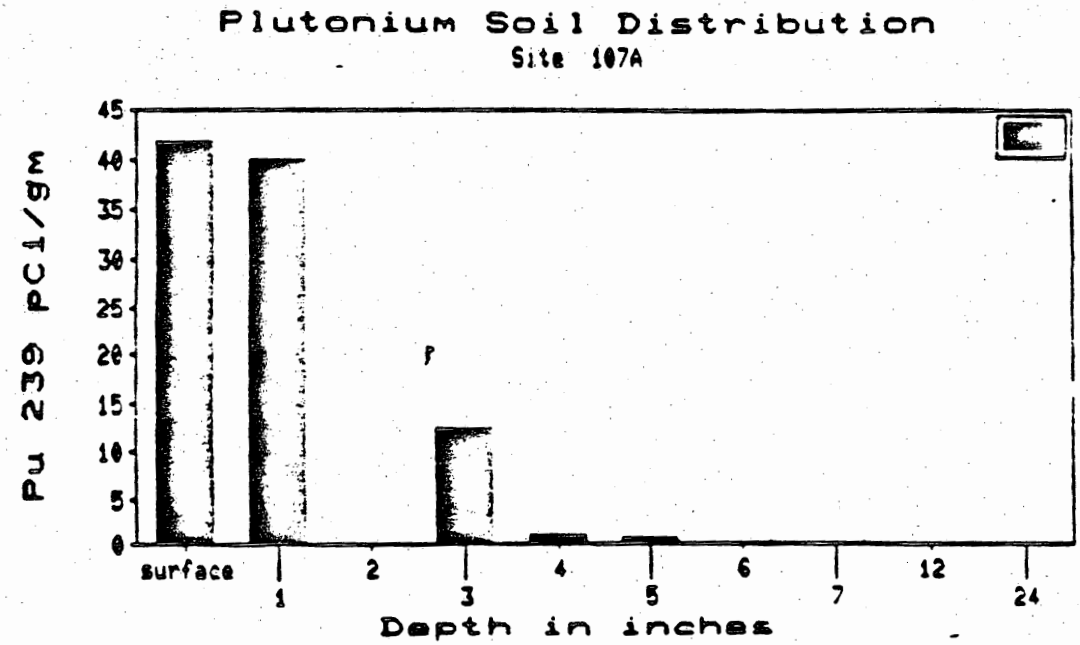


Figure 10: Vertical Pu-239 Soil Distribution, Site 107A

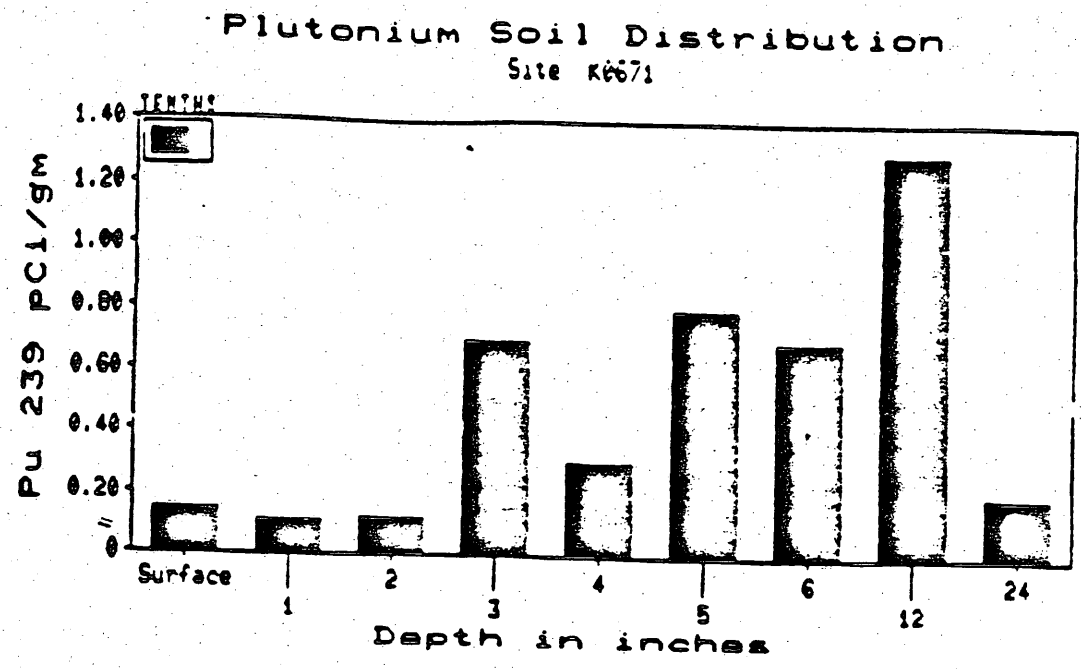


Figure 11: Vertical Pu-239 Soil Distribution, Site K0671

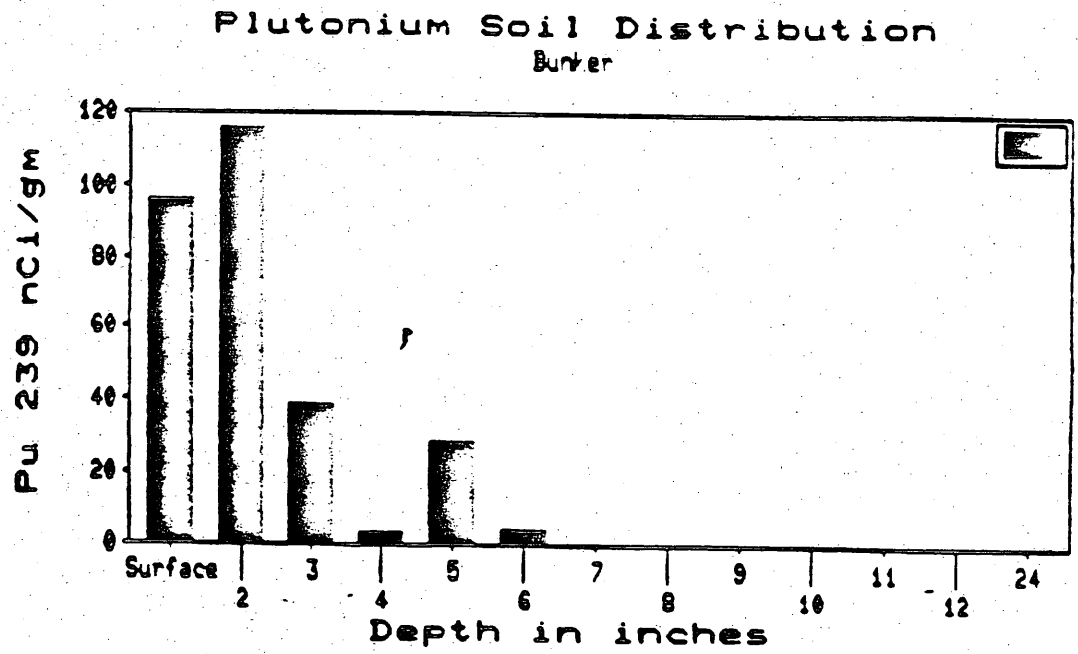


Figure 12: Vertical Pu-239 Soil Distribution, Bunke

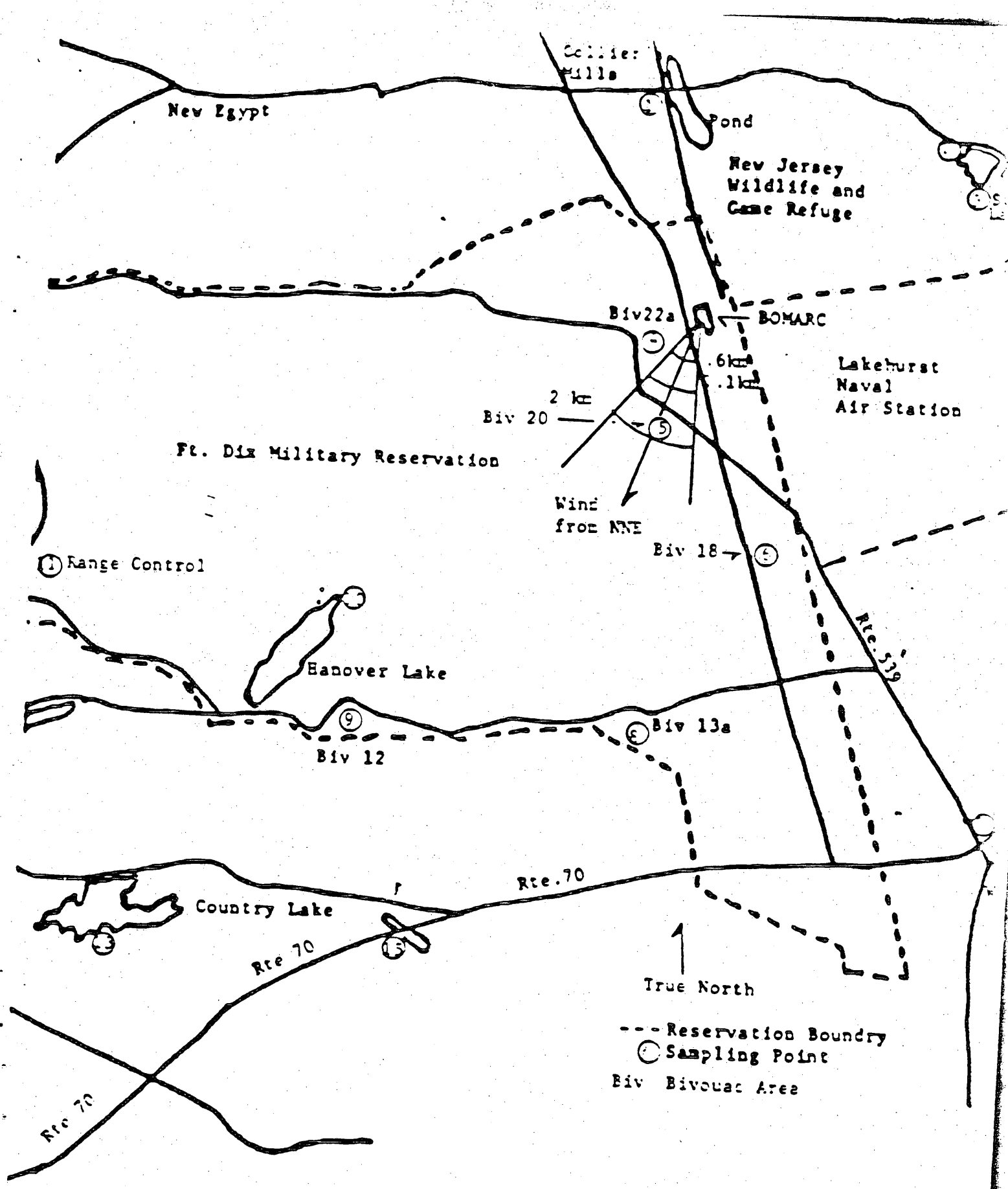


FIGURE 13 Downwind Areas from BOMARC Accident Si

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERROR PER CE
A	1	2	19-SEP-85	1.738		
A	2	2	19-SEP-85	1.738		
A	4	2	19-SEP-85	1.454		
A	6	2	19-SEP-85	1.505		
A	8	2	19-SEP-85	1.505		
A	10	2	19-SEP-85	1.454		
A	12	2	19-SEP-85	1.454		
A	14	2	19-SEP-85	1.374		
A	16	2	19-SEP-85	1.401		
A	18	2	19-SEP-85	1.505		
A	20	2	19-SEP-85	1.505		
A	22	2	19-SEP-85	1.648		
A	24	2	19-SEP-85	1.505		
A	25	2	19-SEP-85	1.505		
A	27	2	19-SEP-85	1.505		
A	29	2	19-SEP-85	1.554		
A	30	2	19-SEP-85	1.505		
A	32	2	19-SEP-85	1.401		
A	33	2	19-SEP-85	0.952		
A	34	2	19-SEP-85	1.648		
A	35	2	19-SEP-85	1.454		
A	36	2	19-SEP-85	1.374		
A	37	2	19-SEP-85	1.374		
AA	35	1	19-SEP-85	0.752		
AA	36	1	19-SEP-85	0.635		
AA	37	1	19-SEP-85	1.100		
B	1	1	19-SEP-85	1.271		
B	2	1	19-SEP-85	1.271		
B	4	1	19-SEP-85	0.898		
B	6	1	19-SEP-85	0.852		
B	8	1	19-SEP-85	0.984		
B	10	1	19-SEP-85	0.984		
B	12	1	19-SEP-85	1.024		
B	14	1	19-SEP-85	1.100		
B	16	1	19-SEP-85	1.063		
B	18	1	19-SEP-85	0.984		
B	20	1	19-SEP-85	1.024		
B	22	1	19-SEP-85	1.136		
B	24	1	19-SEP-85	1.063		
B	25	1	19-SEP-85	1.063		
B	27	1	19-SEP-85	1.171		
B	29	1	19-SEP-85	1.100	1.892	43.18
B	30	1	19-SEP-85	1.100		
B	32	1	19-SEP-85	1.363		
B	33	1	19-SEP-85	1.363		
B	34	1	19-SEP-85	1.363		
B	35	1	19-SEP-85	1.100		
B	36	1	19-SEP-85	0.984		
B	37	1	19-SEP-85	1.171		
BB	35	1	19-SEP-85	0.804		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE (MDAD)	60 KEV LEVEL UCI/M2	ERROR PER CENT
BB	36	1	19-SEP-85	0.752		
BB	37	1	19-SEP-85	1.136		
C	1	2	19-SEP-85	1.229		
C	2	2	19-SEP-85	0.869		
C	4	2	19-SEP-85	0.727		
C	6	2	19-SEP-85	0.824		
C	8	2	19-SEP-85	0.824		
C	10	2	19-SEP-85	0.727		
C	12	2	19-SEP-85	0.752		
C	14	2	19-SEP-85	1.229		
C	16	2	19-SEP-85	0.824		
C	18	2	19-SEP-85	0.824		
C	20	2	19-SEP-85	0.824		
C	22	2	19-SEP-85	1.229		
C	24	2	19-SEP-85	1.166		
C	25	2	19-SEP-85	1.166		
C	27	2	19-SEP-85	1.505		
C	29	2	19-SEP-85	1.346		
C	30	2	19-SEP-85	0.869		
C	32	2	19-SEP-85	1.064		
C	33	2	19-SEP-85	0.752		
C	34	2	19-SEP-85	1.781		
C	35	2	19-SEP-85	1.505		
C	36	2	19-SEP-85	1.454		
C	37	2	19-SEP-85	1.289		
CC	35	1	19-SEP-85	0.804		
CC	36	1	19-SEP-85	1.063		
CC	37	1	19-SEP-85	1.024		
D	1	1	19-SEP-85	0.898		
D	2	1	19-SEP-85	0.635		
D	4	1	19-SEP-85	0.550		
D	6	1	19-SEP-85	0.898		
D	8	1	19-SEP-85	0.778		
D	10	1	19-SEP-85	0.635		
D	12	1	19-SEP-85	0.550		
D	14	1	19-SEP-85	0.898		
D	16	1	19-SEP-85	0.550		
D	18	1	19-SEP-85	0.898		
D	20	1	19-SEP-85	0.635		
D	22	1	19-SEP-85	0.898		
D	24	1	19-SEP-85	1.556	4.003	37.04
D	25	1	19-SEP-85	1.556	4.003	37.04
D	27	1	19-SEP-85	0.449		
D	29	1	19-SEP-85	0.898		
D	30	1	19-SEP-85	1.100	1.456	55.73
D	32	1	19-SEP-85	0.550		
D	33	1	19-SEP-85	1.421	3.518	35.93
D	34	1	19-SEP-85	1.136		
D	35	1	19-SEP-85	1.100		
D	36	1	19-SEP-85	0.942		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERR PER C
D	37	1	19-SEP-85	0.778		
DD	35	1	19-SEP-85	1.024		
DD	36	1	19-SEP-85	0.603		
DD	37	1	19-SEP-85	1.024		
E	1	1	19-SEP-85	1.100		
E	2	1	19-SEP-85	0.635		
E	6	1	19-SEP-85	1.100		
E	10	1	19-SEP-85	0.635		
E	14	1	19-SEP-85	0.898		
E	18	1	19-SEP-85	0.568		
E	20	1	19-SEP-85	0.696		
E	24	1	19-SEP-85	1.136		
E	25	1	19-SEP-85	1.205		
E	29	1	19-SEP-85	1.205		
E	30	1	19-SEP-85	1.100		
E	33	1	19-SEP-85	0.898		
E	34	1	19-SEP-85	1.271		
E	35	1	19-SEP-85	1.271		
E	36	1	19-SEP-85	1.100		
E	37	1	19-SEP-85	1.004		
F	1	1	19-SEP-85	0.449		
F	2	1	19-SEP-85	0.898		
F	5	1	19-SEP-85	0.804		
F	6	1	19-SEP-85	0.898		
F	7	1	19-SEP-85	0.898		
F	9	1	19-SEP-85	0.984		
F	10	1	19-SEP-85	1.863	7.230	28.51
F	13	1	19-SEP-85	1.205		
F	15	1	19-SEP-85	1.100		
F	17	1	19-SEP-85	1.100		
F	18	1	19-SEP-85	1.333		
F	20	1	19-SEP-85	0.696		
F	22	1	19-SEP-85	0.603		
F	24	1	19-SEP-85	1.205		
F	25	1	19-SEP-85	0.898		
F	27	1	19-SEP-85	2.980		
F	29	1	19-SEP-85	2.541	20.862	17.75
F	30	1	19-SEP-85	1.906	15.282	14.32
F	32	1	19-SEP-85	0.984		
F	33	1	19-SEP-85	1.100		
F	34	1	19-SEP-85	1.100		
F	35	1	19-SEP-85	1.620	- 3.154	50.23
F	36	1	19-SEP-85	1.100		
F	37	1	19-SEP-85	1.171		
G	9	1	19-SEP-85	1.863	- 7.230	28.51
G	13	1	19-SEP-85	1.205		
G	15	1	19-SEP-85	1.100		
G	17	1	19-SEP-85	1.100		
G	19	1	19-SEP-85	0.696		
G	22	1	19-SEP-85	0.603		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE (MDAD)	60 KEV LEVEL UCI/M2	ERROR PER CE
G	24	1	19-SEP-85	1.205		
G	27	1	19-SEP-85	0.942	711197.750	3.30
G	29	1	19-SEP-85	2.541		
G	31	1	19-SEP-85	1.906	12180.122	14.32
G	33	1	19-SEP-85	1.100		
G	34	1	19-SEP-85	1.100		
G	35	1	19-SEP-85	1.620	3.154	50.23
G	36	1	19-SEP-85	1.100		
G	37	1	19-SEP-85	1.171		
H	1	1	19-SEP-85	1.238		
H	2	1	19-SEP-85	1.100		
H	3	1	19-SEP-85	1.100		
H	5	1	19-SEP-85	1.100		
H	7	1	19-SEP-85	1.100		
H	9	1	19-SEP-85	1.100		
H	11	2	19-SEP-85	0.824		
H	13	2	19-SEP-85	1.289		
H	15	2	19-SEP-85	1.505		
H	17	2	19-SEP-85	1.454		
H	19	2	19-SEP-85	0.752		
H	22	2	19-SEP-85	1.229		
H	24	2	19-SEP-85	0.869		
H	27	2	19-SEP-85	0.673		
H	29	2	19-SEP-85	1.289		
H	31	2	19-SEP-85	1.943		
H	33	2	19-SEP-85	1.738		
H	34	2	19-SEP-85	1.289		
H	35	2	19-SEP-85	1.943	1881.881	70.58
H	36	2	19-SEP-85	0.869		
H	37	2	19-SEP-85	1.229		
I	1	1	19-SEP-85	1.063		
I	2	1	19-SEP-85	0.603		
I	3	1	19-SEP-85	1.063		
I	5	1	19-SEP-85	0.852		
I	7	1	19-SEP-85	0.603		
I	11	1	19-SEP-85	0.635		
I	13	1	19-SEP-85	0.942		
I	15	1	19-SEP-85	1.004		
I	19	1	19-SEP-85	0.603		
I	23	1	19-SEP-85	0.852		
I	24	1	19-SEP-85	0.898		
I	29	1	19-SEP-85	0.778		
I	31	1	19-SEP-85	0.898	0.971	60.39
I	33	1	19-SEP-85	1.004		
I	34	1	19-SEP-85	1.100		
I	35	1	19-SEP-85	2.841	11215.031	32.32
I	36	1	19-SEP-85	1.136		
I	37	1	19-SEP-85	1.024		
J	1	1	19-SEP-85	1.136		
J	2	1	19-SEP-85	0.984		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERROR PER CE
J	3	1	19-SEP-85	0.942		
J	5	1	19-SEP-85	1.238		
J	7	1	19-SEP-85	0.984		
J	11	1	19-SEP-85	1.238		
J	13	1	19-SEP-85	1.100		
J	15	1	19-SEP-85	1.556	2.038	72.02
J	19	1	19-SEP-85	1.100		
J	23	1	19-SEP-85	1.100		
J	24	1	19-SEP-85	1.100		
J	29	1	19-SEP-85	0.898		
J	31	1	19-SEP-85	1.238		
J	33	1	19-SEP-85	0.898		
J	34	1	19-SEP-85	1.271		
J	35	1	19-SEP-85	1.556		
J	36	1	19-SEP-85	1.392		
J	37	1	19-SEP-85	1.333	3.445	32.94
K	1	1	19-SEP-85	0.898		
K	2	1	19-SEP-85	0.778		
K	5	1	19-SEP-85	1.556	2.912	50.64
K	9	1	19-SEP-85	1.136		
K	13	1	19-SEP-85	1.171	1.213	73.78
K	17	1	19-SEP-85	1.205		
K	19	1	19-SEP-85	1.476	1.747	76.43
K	23	1	19-SEP-85	1.797	3.882	49.29
K	24	1	19-SEP-85	1.797	3.882	49.29
K	28	1	19-SEP-85	2.009	4.853	48.46
K	29	1	19-SEP-85	1.136		
L	1	1	19-SEP-85	0.804		
L	2	1	19-SEP-85	0.635		
L	5	1	19-SEP-85	0.804		
L	9	1	19-SEP-85	0.603		
L	17	1	19-SEP-85	0.696		
L	19	1	19-SEP-85	0.898		
L	23	1	19-SEP-85	1.024		
L	28	1	19-SEP-85	0.568		
L	29	1	19-SEP-85	0.449		
L	33	1	19-SEP-85	0.568		
L	34	1	19-SEP-85	1.063		
L	35	1	19-SEP-85	1.392		
L	36	1	19-SEP-85	1.333		
L	37	1	19-SEP-85	1.392		
M	1	1	19-SEP-85	1.189		
M	2	1	19-SEP-85	0.603		
M	3	1	19-SEP-85	0.492		
M	5	1	19-SEP-85	0.898		
M	7	1	19-SEP-85	0.532		
M	9	1	19-SEP-85	0.532		
M	11	1	19-SEP-85	0.898		
M	13	1	19-SEP-85	0.752		
M	15	1	19-SEP-85	0.568		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEv LEVEL UCI/M2	PER CE
M	17	1	19-SEP-85	0.80		
M	19	1	19-SEP-85	0.942		
M	21	1	19-SEP-85	0.492		
M	23	1	19-SEP-85	0.696		
M	24	1	19-SEP-85	0.492		
M	26	1	19-SEP-85	0.492		
M	28	1	19-SEP-85	0.492		
M	29	1	19-SEP-85	0.898		
M	31	1	19-SEP-85	0.492		
M	33	1	19-SEP-85	1.421		
M	34	1	19-SEP-85	0.898		
M	35	1	19-SEP-85	1.271		
M	36	1	19-SEP-85	0.942		
M	37	1	19-SEP-85	1.392		
N	1	1	19-SEP-85	1.100		
N	2	1	19-SEP-85	0.532		
N	3	1	19-SEP-85	0.568		
N	5	1	19-SEP-85	0.635		
N	7	1	19-SEP-85	0.568		
N	9	1	19-SEP-85	0.550		
N	11	1	19-SEP-85	0.942		
N	13	1	19-SEP-85	0.532		
N	15	1	19-SEP-85	0.603		
N	17	1	19-SEP-85	0.603		
N	19	1	19-SEP-85	0.532		
N	21	1	19-SEP-85	0.898		
N	23	1	19-SEP-85	0.942		
N	24	1	19-SEP-85	0.804		
N	26	1	19-SEP-85	1.100		
N	28	1	19-SEP-85	1.100		
N	29	1	19-SEP-85	0.568		
N	31	1	19-SEP-85	0.898		
N	33	1	19-SEP-85	1.392		
N	34	1	19-SEP-85	1.100		
N	35	1	19-SEP-85	1.449		
N	36	1	19-SEP-85	1.063		
N	37	1	19-SEP-85	1.136		
O	35	1	19-SEP-85	1.024		
O	36	1	19-SEP-85	1.100		
O	37	1	19-SEP-85	0.984		
P	35	1	19-SEP-85	1.100		
P	36	1	19-SEP-85	1.205		
P	37	1	19-SEP-85	1.205		
Q	35	1	19-SEP-85	1.100		
Q	36	1	19-SEP-85	1.100		
Q	37	1	19-SEP-85	1.271		
R	35	1	19-SEP-85	0.984		
R	36	1	19-SEP-85	1.[illegible]		
R	37	1	19-SEP-85	1.[illegible]		
S	35	1	19-SEP-85	1.[illegible]		

35X

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERR PER
S	36	1	19-SEP-85	1.271		
S	37	1	19-SEP-85	1.363		
T	35	1	19-SEP-85	1.136		
T	36	1	19-SEP-85	1.238		
T	37	1	19-SEP-85	1.333		
U	35	1	19-SEP-85	1.100		
U	36	1	19-SEP-85	1.238		
U	37	1	19-SEP-85	1.063		
V	35	1	19-SEP-85	1.024		
V	36	1	19-SEP-85	0.984		
V	37	1	19-SEP-85	1.136		
W	35	1	19-SEP-85	1.171		
W	36	1	19-SEP-85	1.063		
W	37	1	19-SEP-85	1.136		
X	35	1	19-SEP-85	1.063		
X	36	1	19-SEP-85	1.063		
X	37	1	19-SEP-85	1.100		
Y	35	1	19-SEP-85	1.063		
Y	36	1	19-SEP-85	1.100		
Y	37	1	19-SEP-85	1.063		
Z	35	1	19-SEP-85	1.063		
Z	36	1	19-SEP-85	1.063		
Z	37	1	19-SEP-85	1.063		

TABLE 2: Gross Alpha and Pu-239 Concentrations in Residential Well Waters (1985)

NJDEP Number	USAFOEHL Number	Sampled Residence	Concentration (pCi/liter) Gross Alpha	Pu-239
K0330	18501224	Taylor	< 1.0	< 0.02
K0331	18501211	Montervino	< 1.0	< 0.02
K0332	18501216	Lawrence	< 1.0	< 0.01
K0333	18501228	Wallin	< 1.0	< 0.01
K0334	18501226	Larsen	< 1.0	< 0.01
K0336	18501215	Leto < 1.0	< 0.02	
K0337	18501213	Cadenhead	< 1.0	< 0.01

Table 3: Gross Alpha and Pu-239 Water Concentrations in Off-Site Sampling Locations

Site* Number	USAFOEHL Number	Site Description	Concentration (pCi/liter)** Gross Alpha	Pu-239
1	18501219	Collier's Mill Pond	< 0.4	< 0.02
2	18501218	Success Lake, North	< 0.5	< 0.01
3	18501210	Success Lake, South	1.6 ± 0.8	< 0.01
5	18501212	Bivouac Site #20 Tap Water, Ft Dix	1.1 ± 0.6	< 0.02
6	18501227	Bivouac Site #18 Tap Water, Ft Dix	1.2 ± 0.6	< 0.01
10	18501214	Hanover Lake	0.8 ± 0.6	< 0.02
11	18501220	Range Control Tap Water	< 0.6	< 0.02
12	18501221	Mirror-Big Pine Lakes	0.6 ± 0.6	< 0.01
13	18501217	Country Lake	< 0.6	< 0.01
14	18501222	Hwy 70, Lebanon Lake	0.8 ± 0.6	< 0.01
15	18501225	Hwy 70, Marker 33	0.8 ± 0.6	< 0.02

*Reference Figure 7 for locations on area map.

**Result ± 2 standard deviations for the measurement.

TABLE 4: Soil Radionuclide Concentrations for Off-Site Sampling Locations

Site* Number	USAFOEHL Number	Site Description	Radio-Nuclide	Concentration (pCi/dry gram)**
4	18501280	Bivouac Site 22	Pu-239	0.013 ± 0.002
			Am-241	< 0.02
			U-238	0.29 ± 0.20
			U-235	< 0.03
			Cs-137	0.19 ± 0.01
5	18501279	Bivouac Site 20	Pu-239	0.03 ± 0.01
			Am-241	< 0.02
			U-238	0.20 ± 0.17
			U-235	< 0.03
			Cs-137	0.12 ± 0.01
6	18501278	Bivouac Site 18	Pu-239	0.013 ± 0.004
			Am-241	0.03 ± 0.03
			U-238	0.34 ± 0.21
			U-235	< 0.03
			Cs-137	0.31 ± 0.01
7	18501230	Hwy 70 & Rt 539	Pu-239	< 0.004
			Am-241	< 0.02
			U-238	0.30 ± 0.20
			U-235	< 0.03
			Cs-137	0.11 ± 0.01
8	18501235	Bivouac Site 13	Pu-239	0.020 ± 0.005
			Am-241	< 0.02
			U-238	0.40 ± 0.20
			U-235	0.04 ± 0.03
			Cs-137	0.107 ± 0.006
9	18501237	Bivouac Site 13A	Pu-239	0.010 ± 0.005
			Am-241	< 0.01
			U-238	0.30 ± 0.20
			U-235	< 0.03
			Cs-137	0.158 ± 0.007
11	18501232	Range Control	Pu-239	0.90 ± 0.04
			Am-241	< 0.03
			U-238	
			U-235	0.04 ± 0.0-
			Cs-137	0.29 ± 0.01

Site* Number	USAFCEHL Number	Site Description	Radio-Nuclide	Concentration (pCi dry gram **)
12	18501236	Mirror-Big Pine Lake Frontage	Pu-239	< 0.002
			Am-241	< 0.02
			U-238	0.60 ± 0.20
			U-235	0.235 ± 0.03
			Cs-137	0.27 ± 0.01
13	18501233	Country Lake Frontage	Pu-239	0.045 ± 0.008
			Am-241	< 0.02
			U-238	0.30 ± 0.20
			U-235	< 0.03
			Cs-137	0.184 ± 0.007
14	18501234	Hwy 70, Lebanon Lake Frontage	Pu-239	< 0.03
			Am-241	< 0.02
			U-238	0.30 ± 0.20
			U-235	0.03
			Cs-137	0.122 ± 0.006
15	18501229	Hwy 70 & Mile Marker 33	Pu-239	0.023 ± 0.007
			Am-241	< 0.02
			U-238	
			U-235	
			Cs-137	0.58 ± 0.01

*Reference Figure 7 for site map locations

**Result ± 2 standard deviations for the measurement, results for Pu-239 in units of pCi per gram ashed

40X

TABLE 5: Gross Alpha and Pu-239 Concentrations in Government Owned Wells - 1988

Sample* Number	Sampling Description	Depth of Well (ft)	Result** Gross Alpha pCi/L	Pu-239 (pCi/L)
SP001	Naval Propulsion Lab	52	1.0 ± 1.0	< 0.01
SP002	Fire Pond 12, Elisha Branch, Lakehurst NAS	Surface	0.3 ± 0.3	< 0.03
SP003	Bivouac Site 18, Ft Dix	103	1.0 ± 1.0	< 0.03
SP004	Bivouac Site 20, Ft Dix	118	< 1.0	< 0.02
SP005	National Guard UTES Site Ft Dix	87	< 1.0	< 0.03
SP006	Bivouac Site 22a, Ft Dix	125	< 1.0	< 0.03
SP007	BOMARC Site, Well No. 2	100	< 1.0	< 0.01
MW-17	IRP Phase I Monitoring	UNK	1.4 ± 0.7	< 0.01

*Reference Figure 8 for map sampling locations

**Result ± standard deviations for measurement

41X

TABLE 6: Soil Pu-239 Vertical Distributions

Soil Depth (inches)	Soil Pu-239 Concentration: Bunker (nCi/g)	KO671 (pCi/g)	Site 307 (pCi/g)	Site 307A (pCi/g)
Surface	96.6 ± 1.9	0.014 ± 0.002	0.32 ± 0.03	41.9 ± 4.0
1.0	no sample	0.011 ± 0.002	0.24 ± 0.04	40.2 ± 4.1
2.0	116.1 ± 1.5	0.012 ± 0.002	0.31 ± 0.04	no sample
3.0	38.3 ± 0.9	0.07 ± 0.01	0.20 ± 0.03	12.2 ± 1.1
4.0	3.6 ± 0.4	0.03 ± 0.01	0.23 ± 0.03	0.93 ± 0.03
5.0	27.8 ± 2.2	0.08 ± 0.02	0.05 ± 0.01	0.62 ± 0.04
6.0	3.8 ± 3.3	0.07 ± 0.02	0.14 ± 0.01	0.15 ± 0.01
7.0	0.344 ± 0.016*	no sample	no sample	0.15 ± 0.01
8.0	0.222 ± 0.004*	no sample	no sample	no sample
9.0	0.063 ± 0.002*	no sample	no sample	no sample
10.0	0.024 ± 0.002*	no sample	no sample	no sample
11.0	0.011 ± 0.002*	no sample	no sample	no sample
12.0	0.006 ± 0.001	0.13 ± 0.02	0.035 ± 0.002	0.102 ± 0.003
24.0	0.40 ± 0.04	0.02 ± 0.01	0.55 ± 0.02	0.017 ± 0.002

*Pu-239 estimated from Am-241, others measured directly

42X

TABLE 7: 1985 Soil Sample Radionuclide Concentrations for BOMARC Site Sampling Points

Site* Number	USAFOEHL Number	Radio-Nuclide	Concentration (pCi/dry gram)**
100	18501291	Pu-239	0.024 ± 0.006
		Am-241	< 0.02
		U-238	0.4 ± 0.2
		U-235	< 0.03
		Cs-137	0.39 ± 0.01
101	18501292	Pu-239	0.03 ± 0.01
		Am-241	< 0.03
		U-238	0.8 ± 0.4
		U-235	0.09 ± 0.05
		Cs-137	0.21 ± 0.01
102	18501293	Pu-239	0.028 ± 0.009
		Am-241	< 0.02
		U-238	0.5 ± 0.3
		U-235	0.04 ± 0.04
		Cs-137	0.229 ± 0.009
103	18501294	Pu-239	0.047 ± 0.026
		Am-241	< 0.02
		U-238	0.7 ± 0.3
		U-235	0.07 ± 0.04
		Cs-137	0.24 ± 0.01
104	18501295	Pu-329	0.03 ± 0.02
		Am-241	< 0.02
		U-238	0.66 ± 0.26
		U-235	0.033 ± 0.032
		Cs-137	0.183 ± 0.003
105	18501296	Pu-239	0.09 ± 0.02
		Am-241	< 0.02
		Cs-137	0.262 ± 0.008
106	18501297	Pu-239	0.09 ± 0.02
		Am-241	< 0.02
		U-238	0.28 ± 0.22
		U-235	0.034 ± 0.025
		Cs-137	0.179 ± 0.007
107	18501298	Pu-239	2.1 ± 0.3
		Am-241	0.22 ± 0.02
		U-238	0.033 ± 0.025
		Cs-137	0.269 ± 0.008

Site* Number	USAFCERL Number	Radio-Nuclide	Concentration (pCi/dry gram)**
108	18510299	Pu-239	0.06 ± 0.0[illegible]
		Am-241	< 0.02
		U-238	0.33 ± 0.22
		U-235	0.034 ± 0.032
		Cs-137	0.196 ± 0.008
109	18510300	Pu-239	1.9 ± 0.2
		Am-241	0.09 ± 0.02
		U-238	0.24 ± 0.20
		Cs-137	0.229 ± 0.007
110	18510301	Pu-239	0.46 ± 0.07
		Am-241	0.08 ± 0.03
		U-238	0.26 ± 0.19
		U-235	0.036 ± 0.028
		Cs-137	0.170 ± 0.007
111	18510302	Pu-239	0.014 ± 0.007
		Am-241	< 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.209 ± 0.008
112	18510303	Pu-239	0.016 ± 0.008
		Am-241	< 0.03
		U-238	0.38 ± 0.29
		U-235	0.05 ± 0.04
		Cs-137	0.213 ± 0.009
113	18510304	Pu-239	0.025 ± 0.009
		Am-241	< 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.236 ± 0.009
114	18510305	Pu-239	< 0.003
		Am-241	< 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.114 ± 0.007
115	18510306	Pu-239	0.13 ± 0.07
		Am-241	< 0.03
		U-238	0.27 ± 0.23
		Cs-137	0.213 ± 0.008
116	18510307	Pu-239	0.28 ± 0.05
		Am-241	< 0.02
		Cs-137	0.229 ± 0.009
[illegible]	[illegible]18510308	Pu-239	0.19 ± 0.03
		Am-24[illegible]	< 0.02
		Cs-137	0.174 ± 0.007

Site* Number	USAFOEHL Number	Radio-Nuclide	Concentration (pCi/dry gram) **
118	18510309	Pu-239	0.90 ± 0.09
		Am-241	0.08 ± 0.03
		U-235	0.03 ± 0.03
		Cs-137	0.227 ± 0.009
119	18510310	Pu-239	0.015 ± 0.008
		Am-241	< 0.02
		U-235	0.032 ± 0.029
		Cs-137	0.108 ± 0.006
120	18510311	Pu-239	0.03 ± 0.01
		Am-241	< 0.02
		Cs-137	0.252 ± 0.009
121	18501312	Pu-239	0.17 ± 0.03
		Am-241	< 0.02
		Cs-137	0.42 ± 0.01
122	18501313	Pu-239	0.05 ± 0.02
		Am-241	< 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.25 ± 0.01
123	18501314	Pu-239	0.02 ± 0.01
		Am-214	< 0.03
		U-238	0.4 ± 0.3
		Cs-137	0.246 ± 0.009
124	18501315	Pu-239	0.011 ± 0.007
		Am-241	< 0.02
		Cs-137	0.128 ± 0.006
125	18501316	Pu-239	0.02 ± 0.01
		Am-241	< 0.03
		Cs-137	0.132 ± 0.007
126	18501317	Pu-239	0.07 ± 0.02
		Am-241	< 0.02
		U-235	0.04 ± 0.03
		Cs-137	0.30 ± 0.01
127	18501318	Pu-239	0.04 ± 0.01
		Am-241	< 0.02
		U-235	0.04 ± 0.03
		U-238	0.5 ± 0.2
		Cs-137	0.189 ± 0.008

139	18501330	Pu-239		0.006 ± 0.00-
		Am-241		< 0.02
		U-238		0.3 ± 0.3
		Cs-137		0.072 ± 0.00-
140	18501331	Pu-239	= 101	0.005 ± 0.003
		Am-241	= [illegible]	< 0.02
		U-235		0.03 ± 0.03
		U-238		0.32 ± 0.26
		Cs-137		0.081 ± 0.006
141	18501332	Pu-239		< 0.002
		Am-241		< 0.02
		U-238		0.4 ± 0.2
		Cs-137		0.087 ± 0.006
142	18501333	Pu-239		0.009 ± 0.007
		Am-241		< 0.02
		U-235		0.03 ± 0.03
		U-238		0.37 ± 0.23
		Cs-137		0.109 ± 0.006
143	18501334	Pu-239		0.005 ± 0.004
		Am-241		< 0.02
		U-238		0.24 ± 0.21
		Cs-137		0.250 ± 0.009
144	18501335	Pu-239	=	0.008 ± 0.005
		Am-241	[illegible]	< 0.02
		U-235		0.05 ± 0.04
		U-238		0.45 ± 0.29
		Cs-137		0.219 ± 0.009
145	18501336	Pu-239		0.016 ± 0.005
		Am-241		< 0.03
		U-238		0.5 ± 0.3
		Cs-137		0.202 ± 0.008
146	18501337	Pu-239		0.010 ± 0.005
		Am-241		< 0.02
		U-235		0.03 ± 0.03
		U-238		0.5 ± 0.3
		Cs-137		0.204 ± 0.008
147	18501338	Pu-239		< 0.003
		Am-241		< 0.02
		U-235		0.05 ± 0.03
		U-238		0.5 ± 0.3
		Cs-137		0.14- ± 0.00-
148	18501339	Pu-239		0.02- ± 0.00-
		Am-241		< 0.02
		U-238		0.4 ± 0.3
		Cs-137		0.20- ± 0.00-

128	18501319	Pu-239	0.007 ± 0.00[illegible]
		Am-241	< 0.02
		U-235	0.3 ± 0.2
		Cs-137	0.073 ± 0.005
129	18501320	Pu-239	0.009 ± 0.007
		Am-241	< 0.02
		Cs-137	0.073 ± 0.006
130	18501321	Pu-239	0.02 ± 0.01
		Am-241	< 0.02
		U-235	0.03 ± 0.03
		U-238	0.22 ± 0.14
		Cs-137	0.073 ± 0.005
131	18501322	Pu-239	0.020 ± 0.007
		Am-241	< 0.02
		Cs-137	0.165 ± 0.007
132	18501323	Pu-239	0.018 ± 0.007
		Am-241	< 0.02
		U-238	0.3 ± 0.02
		Cs-137	0.208 ± 0.007
133	18501324	Pu-239	0.016 ± 0.008
		Am-241	< 0.02
		U-238	0.19 ± 0.17
		Cs-137	0.115 ± 0.006
134	18501325	Pu-239	0.011 ± 0.006
		Am-241	< 0.02
		U-238	0.6 ± 0.3
		Cs-137	0.251 ± 0.009
135	18501326	Pu-239	0.007 ± 0.004
		Am-241	< 0.02
		U-238	0.6 ± 0.3
		Cs-137	0.189 ± 0.008
136	18501327	Pu-239	0.03 ± 0.02
		Am-241	< 0.02
		U-235	0.04 ± 0.04
		U-238	0.5 ± 0.3
		Cs-137	0.280 ± 0.009
137	18501328	Pu-239	0.028 ± 0.006
		Am-241	< 0.03
		U-238	0.5 ± 0.2
		Cs-137	0.215 ± 0.008
138	18501329	Pu-239	0.06 ± 0.01
		Am-241	< 0.02
		U-238	0.20 ± 0.18
		Cs-137	0.190 ± 0.007

APPENDIX A

SOIL RESULTS (1975-1985)

Soil Sample Results - Pu 239,240

Site	Year	pCi/gm	pCi/m²	Site	Year	pCi/gm	pCi/m²
100	1975	<.02	<.004	101	1975	<.02	<.004
	1976				1976	<.05	<.03
	1978				1978	.01	.003
	1981				1981	.013	.003
	1982				1982	.20	.031
	1983				1983	.03	.004
	1984				1984	.024	.004
	1985	.024	.005		1985	.03	.007
102	1975	<.02	<.004	103	1975	.04	.009
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978	.01	.002
	1981				1981	.029	.006
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.028	.005		1985	.047	.011
104	1975	<.02	<.004	105	1975	<.02	<.004
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.03	.008		1985	.09	.019
106	1975	<.02	<.004	107	1975	<.02	<.004
	1976	<.05	<.03		1976	5.6	1.33
	1978				1978	.72	.243
	1981				1981	.13	.043
	1982				1982	4.2	1.00
	1983				1983	1.5	.34
	1984				1984	.33	.079
	1985	.09	.021		1985	2.1	.548
108	1975	2.16	.463	109	1975	.43	.134
	1976	2.8	.69		1976	1.1	.33
	1978	.			1978	1.34	.43
	1981	.015	.004		1981	.91	.215
	1982	.22	.064		1982	2.1	.605
	1983	1.0	.251		1983	.52	.106
	1984	.40	.087		1984	1.9	.47
	1985	.06	.014		1985	1.9	.51

[illegible]	[illegible]	Pu-239	0.08 ± 0.02
		Am-241	< 0.02
		U-238	0.29 ± 0.20
		Cs-137	0.[illegible] ± 0.00[illegible]
161	18501352	Pu-239	0.010 ± 0.005
		Am-241	< 0.02
		U-238	0.3 ± 0.2
		Cs-137	0.131 ± 0.006
162	18501353	Pu-239	0.02 ± 0.01
		Am-241	< 0.02
		U-238	0.44 ± 0.27
		Cs-137	0.199 ± 0.008
163	18501354	Pu-239	< 0.01
		Am-241	< 0.03
		U-238	0.4 ± 0.3
		Cs-137	0.193 ± 0.008
164	18501355	Pu-239	0.76 ± 0.08
		Am-241	0.07 ± 0.03
		U-235	0.05 ± 0.03
		U-238	0.25 ± 0.22
		Cs-137	0.29 ± 0.01
165	18501356	Pu-239	0.63 ± 0.08
		Am-241	0.15 ± 0.03
		U-235	0.05 ± 0.03
		U-238	0.28 ± 0.24
		Cs-137	0.251 ± 0.009
166	18501357	Pu-239	0.93 ± 0.09
		Am-241	0.07 ± 0.03
		Cs-137	0.169 ± 0.008
167	18501358	Pu-239	4.9 ± 0.5
		Am-241	0.58 ± 0.04
		U-238	0.23 ± 0.18
		Cs-137	0.189 ± 0.008
168	18501359	Pu-239	0.06 ± 0.01
		Am-241	0.023 ± 0.019
		U-238	0.22 ± 0.14
		Cs-137	0.228 ± 0.007
169	18501360	Pu-239	0.16 ± 0.03
		Am-241	< 0.02
		Cs-137	0.179 ± 0.007
[illegible]	[illegible]	Pu-239	0.[illegible] ± 0.00[illegible]
		Am-241	< 0.02
		U-235	0.0[illegible] ± 0.035
		U-238	0.45 ± 0.25
		Cs-137	0.[illegible] ± 0.008

SDX

149	18501340	Pu-239	< 0.0[illegible]
		Am-241	< 0.03
		U-238	0.3 ± 0.2
		Cs-137	0.182 ± 0.008
150	18501341	Pu-239	0.034 ± 0.010
		Am-241	< 0.03
		U-238	0.4 ± 0.3
		Cs-137	0.276 ± 0.009
151	18501342	Pu-239	0.015 ± 0.008
		Am-241	< 0.03
		U-238	0.4 ± 0.2
		Cs-137	0.167 ± 0.008
152	18501343	Pu-239	0.017 ± 0.006
		Am-241	< 0.03
		U-238	0.21 ± 0.20
		Cs-137	0.196 ± 0.008
153	18501344	Pu-239	0.016 ± 0.010
		Am-241	< 0.02
		U-238	0.26 ± 0.21
		Cs-137	0.182 ± 0.008
154	18501345	Pu-239	0.012 ± 0.007
		Am-241	< 0.02
		Cs-137	0.205 ± 0.008
155	18501346	Pu-239	< 0.03
		Am-241	< 0.02
		U-238	0.5 ± 0.2
		Cs-137	0.158 ± 0.008
156	18501347	Pu-239	0.019 ± 0.010
		Am-241	< 0.01
		U-238	0.2 ± 0.2
		Cs-137	0.068 ± 0.005
157	18501348	Pu-239	0.20 ± 0.03
		Am-241	< 0.01
		Cs-137	0.012 ± 0.003
158	18501349	Pu-239	0.04 ± 0.01
		Am-241	< 0.02
		U-238	0.2 ± 0.2
		Cs-137	0.116 ± 0.006
159	18501350	Pu-239	0.016 ± 0.006
		Am-2-1	< 0.02
		U-235	0.05 ± 0.0[illegible]
		U-238	0.46 ± 0.08
		Cs-137	0.221 ± 0.008

182	18501373	Pu-239	0.23 ± 0.03
		Am-241	< 0.02
		U-238	0.2 ± 0.2
		Cs-137	0.157 ± 0.007
183	18501374	Pu-239	0.03 ± 0.02
		Am-241	< 0.02
		U-238	0.3 ± 0.2
		Cs-137	0.173 ± 0.007
184	18501375	Pu-239	0.04 ± 0.01
		Am-241	< 0.03
		U-238	0.31 ± 0.27
		Cs-137	0.187 ± 0.008
185	18501376	Pu-239	0.02 ± 0.01
		Am-241	< 0.02
		U-238	0.24 ± 0.22
		Cs-137	0.195 ± 0.008
186	18501377	Pu-239	0.06 ± 0.02
		Am-241	< 0.02
		Cs-137	0.236 ± 0.008
187	18501378	Pu-239	0.05 ± 0.01
		Am-241	< 0.02
		Cs-137	0.156 ± 0.007
188	18501379	Pu-239	0.04 ± 0.02
		Am-241	< 0.02
		U-235	0.068 ± 0.032
		U-238	0.40 ± 0.19
		Cs-137	0.159 ± 0.008
189	18501380	Pu-239	0.016 ± 0.009
		Am-241	< 0.02
		U-238	0.49 ± 0.30
		Cs-137	0.209 ± 0.008
190	18501381	Pu-239	0.006 ± 0.003
		Am-241	< 0.02
		U-235	0.04 ± 0.03
		U-238	0.35 ± 0.25
		Cs-137	0.102 ± 0.006
191	18501382	Pu-239	0.014 ± 0.006
		Am-241	< 0.03
		U-238	0.6 ± 0.3
		Cs-137	0.23 ± 0.01

171	18501362	Pu-239	0.016 ± 0.009
		Am-241	< 0.03
		Cs-137	0.317 ± 0.010
172	18501363	Pu-239	45.8 ± 3.5
		Am-241	< 0.74
173	18501364	Pu-239	10.8 ± 1.1
		Am-241	1.5 ± 0.04
		U-235	0.07 ± 0.04
		U-238	0.19 ± 0.17
		Cs-137	0.183 ± 0.009
174	18501365	Pu-239	0.90 ± 0.09
		Am-241	0.07 ± 0.02
		U-238	0.25 ± 0.15
		Cs-137	0.172 ± 0.007
175	18501366	Pu-239	0.12 ± 0.02
		Am-241	< 0.01
		U-235	0.03 ± 0.02
		Cs-137	0.149 ± 0.006
176	18501367	Pu-239	0.05 ± 0.01
		Am-241	< 0.01
		Cs-137	0.118 ± 0.006
177	18501368	Pu-239	0.05 ± 0.01
		Am-241	< 0.02
		Cs-137	0.191 ± 0.008
178	18501369	Pu-239	0.12 ± 0.02
		Am-241	< 0.02
		U-238	0.21 ± 0.20
		Cs-137	0.195 ± 0.008
179	18501370	Pu-239	0.019 ± 0.006
		Am-241	< 0.02
		U-238	0.3 ± 0.2
		Cs-137	0.196 ± 0.007
180	18501371	Pu-239	< 0.084
		Am-241	0.023 ± 0.022
		U-235	0.04 ± 0.03
		Cs-137	0.254 ± 0.009
181	18501372	Pu-239	8.9 ± 0.6
		Am-241	0.82 ± 0.05
		U-235	0.04 ± 0.04
		U-238	0.43 ± 0.27
		Cs-137	0.163 ± 0.008

192	18501383	Pu-239	0.01[illegible] ± 0.005
		Am-241	< 0.02
		U-235	0.033 ± 0.029
		U-238	0.2[illegible] ± 0.21
		Cs-137	0.227 ± 0.008
193	18501384	Pu-239	0.0[illegible]9 ± 0.005
		Am-241	< 0.02
		U-238	0.41 ± 0.24
		Cs-137	0.186 ± 0.007
194	18501385	Pu-239	0.015 ± 0.006
		Am-241	< 0.02
		U-235	0.047 ± 0.035
		U-238	0.52 ± 0.25
		Cs-137	0.174 ± 0.008
195	18501386	Pu-239	0.014 ± 0.005
		Am-241	< 0.02
		U-235	0.05 ± 0.03
		U-238	0.29 ± 0.21
		Cs-137	0.224 ± 0.008

*Pu-239 in units of activity per gram of soil ashed.

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TABLE 8: Aerial Dispersion Modeling Results

Pasquill Stability Class	Wind Velocity (m/s)	Release Height (Meters)	Predicted Downwind Touchdown Point of Plume (meters)
A	3.1	122	500
C	3.1	122	1000
A	1.2	15	10
C	1.2	15	100

Site	Year	[illegible]	[illegible]
122	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.05	.011
124	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.011	.003
126	1975	.46	.099
	1976	.89	.19
	1978	.04	.010
	1981	.10	.017
	1982	.16	.050
	1983	.020	.004
	1984	.20	.039
	1985	.07	.018
128	1975	.03	.010
	1976	<.05	<.03
	1978	.20	.070
	1981	.050	.014
	1982	.10	.031
	1983	.18	.038
	1984	.024	.005
	1985	.007	.002
130	1975	<.02	<.007
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1984	.02	.005
132	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.018	.004

Site	Year	[illegible]	[illegible]
123	1975	<.02	<.007
	1976	<.05	<.03
	1978	.0[illegible]	.003
	1981	.03-	.009
	1982	.085	.02[illegible]
	1983	.007	.002
	1984	.023	.006
	1985	.02	.004
125	1975	.69	.199
	1976	.49	.13
	1978	.05	.013
	1981	.56	.16
	1982	.87	.264
	1983	.080	.018
	1984	.61	.138
	1985	.02	.005
127	1975	.95	.295
	1976	.25	.08
	1978	1.81	.56
	1981	1.2	.368
	1982	.98	.299
	1983	2.00	.397
	1984	1.70	.34
	1985	.04	.011
129	1975	.05	.014
	1976	.11	.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.009	.003
131	1975	<.02	<.005
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.02	.004
133	1975	<.02	<.003
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.016	.003

Site	Year	pCi/g	pCi/m²
110	1975	.44	.137
	1976	.43	.13
	1978	1.44	.421
	1981	.11	.035
	1982	.65	.166
	1983	.45	.095
	1984	2.0	.455
	1985	.46	.113
111	1975	.02	.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.014	.004
112	1975	<.02	<.007
	1976	<.05	<.03
	1978	.06	.043
	1981	.017	.005
	1982	.05	.014
	1983	.080	.017
	1984	.015	.003
	1985	.016	.004
113	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.025	.007
114	1975	.04	.009
	1976	<.05	<.03
	1978	.04	.010
	1981	.017	.005
	1982	.32	.080
	1983	.03	.006
	1984	.50	.079
	1985	<.003	<.001
115	1975	<.02	<.006
	1976	<.05	<.03
	1978	.04	.010
	1981	.048	.012
	1982	.22	.047
	1983	.018	.004
	1984	.080	.016
	1985	.13	.033
116	1975	.66	.188
	1976	1.73	.49
	1978	12.3	3.41
	1981	3.92	1.03
	1982	.08	.020
	1983	.060	.013
	1984	.35	.081
	1985	.28	.076
117	1975	.19	.059
	1976	.12	.035
	1978	.050	.017
	1981		
	1982		
	1983		
	1984		
	1985	.19	.056
118	1975	.62	.179
	1976	.51	.160
	1978	.54	.166
	1981	.59	.164
	1982	.50	.148
	1983	2.5	.592
	1984	.83	.189
	1985	.90	.226
119	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.015	.003
120	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.03	.008
121	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.17	.040

Site	Year	pCi/g	μCi/m²
146	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.010	.002
148	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.021	.005
150	1975	<.02	<.005
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.034	.009
152	1975	<.02	<.006
	1976	<.05	<.03
	1978	.01	.002
	1981	.018	.004
	1982	.029	.008
	1983	.004	.001
	1984	.009	.002
	1985	.017	.006
154	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.012	.003
156	1975	<.02	<.007
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.019	.008

Site	Year	pCi/g	μCi/m²
147	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	<.003	<.001
149	1975	.07	.020
	1976	<.05	<.03
	1978	.02	.004
	1981	.020	.006
	1982	.11	.028
	1983	.020	.004
	1984	.008	.001
	1985	<.01	<.002
151	1975	<.02	<.005
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.015	.004
153	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.016	.003
155	1975	<.02	<.005
	1976	<.05	<.03
	1978	.03	.009
	1981	.045	.010
	1982	.040	.011
	1983	.070	.013
	1984	.037	.008
	1985	<.03	<.007
157	1975	.08	.022
	1976	.24	.08
	1978	.01	.004
	1981		
	1982	.10	.033
	1983		
	1984		
	1985	.20	.03

Site	Year	[illegible]	[illegible]
134	1975	.04	.012
	1976	<.05	<.03
	1978		
	1981		
	1982	.040	.010
	1983	.005	.001
	1984	.011	.002
	1985	.011	.003
136	1976	<.05	<.03
	1978	.01	.004
	1981		
	1982		
	1983		
	1984		
	1985	.03	.008
138	1975	.02	.006
	1976	.15	.04
	1978	.06	.017
	1981	.35	.10
	1982	.29	.082
	1983	.060	.013
	1984	.33	.070
	1985	.06	.015
140	1975	.38	.119
	1976	<.05	<.03
	1978	<.01	<.001
	1981	.15	.042
	1982	.03	.006
	1983	.010	.002
	1984	.009	.002
	1985	.005	.002
142	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.009	.003
144	1975	<.02	<.005
	1976	<.05	<.03
	1978	.14	.040
	1981	.019	.004
	1982	.044	.013
	1983	.020	.004
	1984	.029	.006
	1985	.008	.002

Site	Year	[illegible]	[illegible]
135	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.007	.002
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.028	.007
139	1975	<.02	<.007
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.006	.002
141	1975	<.02	<.007
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	<.002	.001
143	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.005	.004
145	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.016	.004

Site	Year	pCi/l	pCi/m²
170	1975	<.02	<.006
	1976	.07	.02
	1978		
	1981		
	1982		
	1983		
	1984		
	1984	.017	.004
172	1975	.67	.177
	1976	.59	.150
	1978		
	1981		
	1982	1.93	.523
	1983		
	1984		
	1985	45.8	12.1
174	1975	1.36	.449
	1976	1.79	.59
	1978	.53	.071
	1981	.63	.137
	1982	14.8	4.51
	1983	.90	.185
	1984	.24	.032
	1985	.9	.248
176	1975	.14	.048
	1976	.12	.040
	1978	.16	.054
	1981		
	1982		
	1983		
	1984		
	1985	.05	.015
178	1975	<.02	<.006
	1976	.12	.03
	1978	.08	.022
	1981	.07	.018
	1982	.13	.033
	1983	.050	.012
	1984	.16	.037
	1985	.12	.031
180	1975	<.02	<.005
	1976	<.05	<.03
	1978	.01	.003
	1981	.03	.008
	1982	.22	.056
	1983	.020	.00-
	1984	.020	.004
	1985	.014	.003

Site	Year	pCi/l	pCi/m²
171	1975	.08	.023
	1976	3.4	.89
	1978	.12	.031
	1981	.05	.013
	1982	.14	.037
	1983	.15	.039
	1984	.050	.009
	1985	.016	.003
173	1975	20.1	6.49
	1976	20.6	4.20
	1978		
	1981		
	1982	7.3	1.54
	1983		
	1984		
	1985	4.9	2.87
175	1975	.68	.229
	1976	.61	.18
	1978	.06	.015
	1981		
	1982		
	1983		
	1984		
	1985	.12	.036
177	1975	.06	.021
	1976	.10	.030
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.05	.012
179	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.019	.005
181	1975	.18	.041
	1976	5.4	1.6
	1978	-.33	.092
	1981	17.4	2.83
	1982	1.45	.386
	1983	12.2	2.64
	1984	.070	.016
	1985	8.9	2.09

Site	Year		
159	1975	.03	.007
	1976	<.05	<.03
	1978	.01	.002
	1981	.006	.002
	1982	.12	.034
	1983	.009	.001
	1984	.018	.003
	1985	.04	.009
160	1975	<.02	<.006
	1976	<.05	<.03
	1978	.01	.004
	1981	.060	.018
	1982	.23	.040
	1983		
	1984		
	1985	.08	.021
162	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.19	.005
164	1975	1.27	.410
	1976	.23	.070
	1978	8.5	2.36
	1981	.34	.080
	1982	1.47	.396
	1983	.60	.120
	1984	1.9	.43
	1985	.76	.203
166	1975	2.36	.796
	1976	4.4	1.4
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.93	.215
168	1975	1.27	.466
	1976	.46	.15
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.06	.015

Site	Year		
159	1975	.36	.093
	1976	<.05	<.03
	1978	.01	.003
	1981	.012	.003
	1982	.050	.016
	1983	.021	.004
	1984	.007	.001
	1985	.016	.004
161	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.010	.003
163	1975	<.02	<.007
	1976	<.05	<.02
	1978		
	1981	.009	.003
	1982	.06	.017
	1983	.030	.006
	1984	.025	.005
	1985	<.01	<.002
165	1975	1.91	.604
	1976	3.4	1.1
	1978	.35	.098
	1981		
	1982		
	1983		
	1984		
	1985	.63	.123
167	1975	374.	121.
	1976	6.6	2.
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	4.9	1.1
169	1975	.25	.083
	1976	<.05	<.03
	1978	.05	.014
	1981	.019	.006
	1982	.42	.119
	1983	.020	.005
	1984	.13	.037
	1985	.16	.044

61X

Site	Year	PCB g	PCB g/m²
182	1975	.11	.035
	1976	.15	.030
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.23	.062
184	1975	.02	.006
	1976	<.05	<.03
	1978	.02	.005
	1981	.22	.047
	1982	.09	.024
	1983	1.14	.056
	1984	.060	.011
	1985	.04	.008
186	1975	.05	.015
	1976	<.05	<.03
	1978	.06	.018
	1981	.12	.034
	1982	.11	.031
	1983	.040	.009
	1984	.15	.027
	1985	.06	.015
188	1975	<.02	<.006
	1976	<.05	<.03
	1978	.07	.018
	1981	.04	.009
	1982	.09	.027
	1983	.05	.009
	1984	.22	.054
	1985	.04	.009
190	1975	<.02	<.006
	1976	<.05	<.03
	1978	.03	.010
	1981	.02	.004
	1982	.09	.023
	1983	<.003	<.001
	1984	.018	.005
	1985	.006	.001
192	1975	.14	.045
	1976	<.05	<.03
	1978	.01	.003
	1981		
	1982		
	1983		
	1984		
	1985	.01	.003

Site	Year	PCB g	PCB g/m²
183	1975	<.02	<.007
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.03	.008
185	1975	.04	.012
	1976	.33	.090
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.02	.005
187	1975	<.02	<.007
	1976	<.05	<.03
	1978	.01	.032
	1981		
	1982		
	1983		
	1984		
	1985	.05	.013
189	1975	.02	.006
	1976	<.05	<.03
	1978	.03	.008
	1981		
	1982		
	1983		
	1984		
	1985	.016	.004
191	1975	.03	.008
	1976	<.05	<.03
	1978	.16	.041
	1981		
	1982		
	1983		
	1984		
	1985	.014	.002
193	1975	<.02	<.006
	1976	<.05	<.03
	1978	.02	.006
	1981		
	1982		
	1983		
	1984		
	1985	.09	.013

62X

Site	Year	[illegible]	[illegible]	Site	Year	[illegible]	[illegible]
194	1975	<.02	<.006	195	1975	.15	.045
	1976	<.05	<.03		1976	.30	.09
	1978	.01	.002		1978	.39	.012
	1981				1981	.06	.015
	1982				1982	.04	.010
	1983				1983	.018	.004
	1984				1984	.070	.019
	1985	.015	.003		1985	.014	.004

FISLER READINGS

DATE -- 19 SEPT 1985

PLACE - Ft. Dix BOMARC Site

PEOPLE- Maher, Caldwell, Gage

NOTES -Use red ink, pencil, or type.
-Rows are numbers.
-Columns are letters.
-Do the whole left column first, then finish the right.

COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2
A	1	2	160	1400	2000	*	B	29	11	450	1600
A	2	2	250	1500	2000	*	B	30	11	350	1200
A	4	2	175	800	1400	*	B	32	11	425	1800
A	6	2	150	750	1500	*	B	33	11	400	1300
A	8	2	180	1000	1500	*	B	34	11	400	1700
A	10	2	175	1000	1400	*	B	35	11	400	800
A	12	2	160	900	1400	*	B	36	11	300	700
A	14	2	160	1000	1250	*	B	37	11	325	900
A	16	2	150	1000	1300	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX
A	18	2	200	800	1500	*	C	1	2	175	700
A	20	2	200	1000	1500	*	C	2	2	200	490
A	22	2	175	1000	1800	*	C	4	2	225	490
A	24	2	160	1000	1500	*	C	6	2	200	500
A	25	2	160	1000	1500	*	C	8	2	225	475
A	27	2	200	800	1500	*	C	10	2	150	480
A	29	2	180	1000	1600	*	C	12	2	175	500
A	31	2	200	1000	1500	*	C	14	2	200	600
A	32	2	160	800	1300	*	C	16	2	225	475
A	33	2	150	500	1200	*	C	18	2	250	425
A	34	2	200	1400	1800	*	C	20	2	200	500
A	35	2	150	800	1400	*	C	22	2	300	600
A	36	2	125	750	1250	*	C	24	2	250	900
A	37	2	225	750	1250	*	C	25	2	250	900
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	C	27	2	350	1400
B	1	11	350	1250	2000	*	C	29	2	260	600
B	2	11	250	1500	2000	*	C	30	2	260	500
B	4	11	275	700	1000	*	C	32	2	200	600
B	6	11	275	600	900	*	C	33	2	240	500
B	8	11	260	800	1200	*	C	34	2	250	750
B	10	11	280	800	1200	*	C	35	2	300	1000
B	12	11	250	800	1300	*	C	36	2	250	700
B	14	11	275	800	1500	*	C	37	2	225	600
B	16	11	275	800	1400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX
B	18	11	250	800	1200	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX
B	20	11	250	700	1300	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX
B	22	11	425	1500	1600	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX
B	24	11	325	900	1400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX
B	25	11	325	900	1400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX
B	27	11	425	1300	1700	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX

64X

APPENDIX B

FIDLER SURVEY DATA

FIDLER READINGS

DATE -- 19 SEPT 1985

PLACE - Ft. Dix BOMARC Site

PEOPLE- Maher, Caldwell, Gage

NOTES
-Use red ink, pencil, or type.
-Rows are numbers.
-Columns are letters.
-Do the whole left column first, then finish the right.

COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2
D	1	10	275	750	1000	*	F	1	10	200	450
D	2	10	250	500	1000	*	F	2	10	250	700
D	4	10	225	500	750	*	F	5	10	250	600
D	6	10	225	750	1000	*	F	6	10	350	700
D	8	10	250	750	750	*	F	7	10	275	900
D	10	10	225	500	1000	*	F	9	10	325	1000
D	12	10	250	500	750	*	F	10	1	1300	5000
D	14	10	250	750	1000	*	F	13	1	375	1000
D	16	10	275	500	750	*	F	15	1	275	800
D	18	10	300	750	1000	*	F	17	1	400	900
D	20	10	250	500	1000	*	F	18	1	475	1800
D	22	10	250	750	1000	*	F	20	1	275	500
D	24	10	1000	3250	3000	*	F	22	1	250	500
D	25	10	1000	3250	3000	*	F	24	1	450	1500
D	27	10	200	475	500	*	F	25	1	330	700
D	29	10	325	750	1000	*	F	27	1	1700	8000
D	30	10	375	1500	1500	*	F	29	1	3500	11000
D	32	10	250	500	750	*	F	30	1	1400	7000
D	33	10	600	2750	2500	*	F	32	1	300	700
D	34	10	475	1000	1600	*	F	33	1	375	1000
D	35	10	350	1250	1500	*	F	34	1	425	1100
D	36	10	300	1000	1100	*	F	35	1	600	3250
D	37	10	325	750	750	*	F	36	1	400	1000
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	F	37	1	350	1200
E	1	11	110	900	1500	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX
E	2	11	110	500	1000	*	H	1	1	250	900
E	6	11	160	800	1500	*	H	2	1	350	750
E	10	11	130	480	1000	*	H	3	1	350	900
E	14	11	140	600	1000	*	H	5	1	300	900
E	18	11	140	500	800	*	H	7	1	250	1000
E	20	11	140	500	1200	*	H	9	1	350	600
E	24	11	200	1200	1600	*	H	11	2	200	475
E	25	11	250	1400	1800	*	H	13	2	350	750
E	29	11	280	1500	1800	*	H	15	2	350	1100
E	30	11	220	1000	1500	*	H	17	2	290	750
E	33	11	250	750	1000	*	H	19	2	200	500
E	34	11	275	1500	2000	*	H	22	2	190	600
E	35	11	225	1250	2000	*	H	24	2	240	500
E	36	11	250	750	1500	*	H	27	2	220	490
E	37	11	200	1000	1250	*	H	29	2	240	600
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	H	31	2	470	2000

FIDLER READINGS

DATE -- 19-SEPT-1985

PLACE - Ft. Dix BOMARC Site

PEOPLE- Maher, Caldwell, Gage

NOTES
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-Do the whole left column first, then finish the right.

COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2	HV
H	33	2	360	1400	2000	*	J	36	1	240	1600	2
H	34	2	250	750	1100	*	J	37	1	400	2500	2
H	35	2	900	2500	2500	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
H	36	2	250	500	1000	*	K	1	10	110	800	1
H	37	2	325	1000	1000	*	K	2	11	140	500	1
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	K	5	11	240	3000	3
I	1	11	130	600	1400	*	K	9	11	310	600	1
I	2	10	275	500	900	*	K	13	11	180	1600	1
I	3	11	160	900	1400	*	K	17	11	225	1600	1
I	5	10	250	600	900	*	K	19	11	350	2500	2
I	7	10	225	500	900	*	K	23	11	490	4000	4
I	11	10	250	500	1000	*	K	24	11	460	4000	4
I	13	10	300	750	1100	*	K	28	11	480	5000	5
I	15	10	350	750	1250	*	K	29	11	200	1400	1
I	19	10	250	500	900	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
I	23	10	250	750	900	*	L	1	1	260	600	8
I	24	10	300	750	1000	*	L	2	11	250	490	1
I	29	10	300	750	750	*	L	5	10	200	600	8
I	31	10	350	1000	1000	*	L	9	11	110	500	9
I	33	10	375	1000	1250	*	L	17	11	140	500	12
I	34	10	450	1400	1500	*	L	19	11	180	600	1
I	35	10	3250	11000	10000	*	L	23	11	150	600	1
I	36	10	500	1500	1600	*	L	26	11	150	500	8
I	37	10	260	1000	1250	*	L	29	11	150	490	5
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	L	33	11	150	500	8
J	1	1	250	1000	1600	*	L	34	11	140	900	14
J	2	10	300	800	1200	*	L	35	11	210	1800	24
J	3	1	200	600	1100	*	L	36	11	170	1500	22
J	5	1	390	1500	1900	*	L	37	11	240	1600	24
J	7	1	310	1000	1200	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
J	11	1	390	1200	1900	*	M	1	1	290	600	1
J	13	1	450	1000	1500	*	M	2	11	160	500	9
J	15	1	600	2800	3000	*	M	3	11	160	490	6
J	19	1	360	1000	1500	*	M	5	1	250	600	1
J	23	1	350	1000	1500	*	M	7	11	150	500	7
J	24	1	300	600	1500	*	M	9	10	300	500	7
J	29	1	260	600	1000	*	M	11	1	260	600	1
J	31	1	300	600	1900	*	M	13	1	260	600	7
J	33	1	240	600	1000	*	M	15	1	240	490	8
J	34	1	210	1400	2000	*	M	17	1	250	600	8
J	35	1	480	2000	3000	*	M	19	1	310	600	1

FIDLER READINGS

DATE -- 19-SEPT-1985

PLACE - Ft. Dix BOMARC Site

PEOPLE- Maher, Caldwell, Gage

NOTES
-Use red ink, pencil, or type.
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-Columns are letters.
-Do the whole left column first, then finish the right.

COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2	H
M	21	1	250	490	600	*	P	35	10	425	1200	1
M	23	1	260	600	600	*	P	36	1	360	1000	1
M	24	1	310	490	600	*	P	37	11	240	1300	1
M	26	1	200	450	600	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
M	28	1	260	500	600	*	Q	35	10	400	1100	1
M	29	1	300	600	1000	*	Q	36	1	210	750	1
M	31	1	240	490	600	*	Q	37	11	180	1300	2
M	33	11	210	1800	2500	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
M	34	1	250	700	1000	*	R	35	10	325	1000	1
M	35	1	400	1500	2000	*	R	36	1	420	1200	1
M	36	1	380	800	1100	*	R	37	11	350	1400	1
M	37	1	460	1600	2400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	S	35	10	350	1200	1
N	1	1	290	750	1500	*	S	36	1	470	1250	2
N	2	10	200	500	700	*	S	37	11	270	1800	2
N	3	10	220	500	800	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
N	5	1	250	500	1000	*	T	35	10	400	1200	1
N	7	10	230	500	800	*	T	36	1	460	1600	1
N	9	1	250	490	750	*	T	37	11	290	2000	2
N	11	1	240	700	1100	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
N	13	11	140	500	700	*	U	35	10	275	1200	1
N	15	1	300	490	900	*	U	36	1	460	1400	1
N	17	11	200	500	900	*	U	37	11	220	1000	1
N	19	1	260	500	700	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
N	21	11	150	700	1000	*	V	35	10	375	1000	1
N	23	1	290	800	1100	*	V	36	1	350	600	1
N	24	11	170	600	800	*	V	37	11	230	1100	1
N	26	1	300	900	1500	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
N	28	11	180	1000	1500	*	W	35	10	425	1500	1
N	29	1	250	500	800	*	W	36	1	360	900	1
N	31	11	210	600	1000	*	W	37	11	250	1200	1
N	33	1	400	1500	2400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
N	34	11	180	1200	1500	*	X	35	10	400	1000	1
N	35	1	450	2100	2600	*	X	36	1	350	750	1
N	36	11	140	800	1400	*	X	37	11	220	1000	1
N	37	11	230	1000	1600	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	Y	35	10	375	900	1
O	35	10	400	1100	1300	*	Y	36	1	360	700	1
O	36	1	260	900	1500	*	Y	37	11	200	1000	1
O	37	11	180	800	1200	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX

FIDLER READINGS

DATE -- 19-SEPT-1985

PLACE - Ft. Dix BOMARC Site

PEOPLE- Maher, Caldwell, Gage

NOTES
-Use red ink, pencil, or type.
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COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2	HV
Z	35	10	325	1200	1400	*						
Z	36	1	325	1000	1400	*						
Z	37	11	150	800	1400	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						
AA	35	10	325	500	1400	*						
AA	36	1	300	500	1200	*						
AA	37	11	200	600	1500	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						
BB	35	10	260	700	800	*						
BB	36	1	300	700	700	*						
BB	37	11	200	1000	1600	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						
CC	35	10	300	600	800	*						
CC	36	1	240	600	1400	*						
CC	37	11	120	800	1300	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						
DD	35	10	325	900	1300	*						
DD	36	1	260	500	900	*						
DD	37	11	150	800	1300	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						

Distribution List

	Copies
HQ USAF/SGPA Bolling AFB DC 20332-5158	1
AFOMS/SGPR Brooks AFB TX 78235-5000	1
SAF/MII/MIQ Washington DC 20330-5000	1 ea
HQ USAF/LEE Bolling AFB DC 20332/5000	1
HQ AFSC/SGPB Andrews AFB MD 20334-5000	1
HQ MAC/SGPB Scott AFB IL 62225-5001	10
USAF Clinic McGuire/SG/SGPB McGuire AFB NJ 08641-5300	1 ea
438 MAW/DE McGuire AFB NJ 08641-5000	1
438 MAW/CC/DE/PA/JA McGuire AFB NJ 08641-5000	1 ea
DTIC Cameron Station Alexandria VA 22314	2

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GPN:094

BOMARC MISSILE SITE
PRELIMINARY EVALUATION

McGuire Air Force Base covers approximately 3,536 acres in central New Jersey near Plumstead Township. It is located north of Fort Dix property which straddles the boundary between Ocean and Burlington Counties. Located on the east side of Route 539, about 6 miles from the air force base is the BOMARC Missile Site, which is considered part of McGuire Air Force Base and is leased from Fort Dix (Figure 1). Approximately 70 bunkers are located on the site which housed BOMARC liquid and solid fueled missiles in the 1960's and 1970's (Figure 2). In 1972, the missiles were considered obsolete and removed. In 1980, the Department of Defense retained a private company, Roy F. Weston, to begin characterization of the site in response to an Installation Restoration Program (IRP), which began in 1978. The purpose of the IRP is to assess and control the migration of environmental contamination. In 1984, Phase II, Stage I IRP work, nine areas on the McGuire Air Force Base were initially surveyed, including landfills, a pesticide wash area, a bulk fuel storage area, a drum burial site, and the BOMARC Missile Site discharge pit. High Levels of DDT, DDE, Chlordane, organic halogens, and oil and grease contamination were found in several test wells on the main base (RFW,84). This survey was primarily an investigation of groundwater contamination by toxic chemicals and no radiological contamination assessment was conducted. A work plan for Stage II of the characterization has been submitted by Roy F. Weston, which will include radiological as well as hazardous material contamination assessment at the BOMARC Missile Site (RFW,86).

The origin of the radiological contamination at the BOMARC site was a June 7, 1960 explosion and fire. The fire occurred when a high pressure helium tank exploded and ruptured a missile's fuel tanks. The thermonuclear warhead on the missile was destroyed and contamination was spread due to fire fighting activities (DOD,84). After this incident, the USAF Occupational and Environmental Health Laboratory conducted annual radiological surveys of the area immediately adjacent to the destroyed bunker. This area is enclosed by concertina wire (Figure 2). The number of samples collected over more than a decade of surveys would seem to produce a large data base for evaluation of the extent of contamination. However, as noted in a review of the 1985 survey (EPA,86), "The results of the survey indicate that the data being collected are still insufficient to determine the extent (if any) of plutonium migration from its original location after the accident. Data is cited as being erratic and of considerable variability, and therefore, is of questionable use in tracking the plutonium". The procedures used for obtaining this data must be reviewed in order to determine whether or not the environmental data obtained from these sampling procedures are truly relevant. Again, from the previously cited memo, "In general, we support the recommendations of the report for increased monitoring, however, increased measurements with this type of variability will not necessarily provide more information".

On October 15, 1986, representatives of the New Jersey Department of Environmental Protection (NJDEP) visited the BOMARC Missile Site to observe the U.S. Air Force perform their annual radiological monitoring and to make independent contamination measurements. Consistent with the EPA's comments on sampling procedures, we believe that the site is inadequately characterized with regard to the extent of contamination. NJDEP staff noted that:

- The USAF survey used an Intrinsic Germanium detector, suspended 18 feet above ground level in an attempt to cover a larger area. The distance from the detector to the surface would tend to average out the contribution from small areas of high contamination. Thus, high level of contamination could exist in small areas.

- The USAF survey used a FIDLER fixed 12 inches above the ground on a tripod. No correction was made for the attenuation of low energy gammas from Am-241 (59.5 kev) and Pu-239 (17 kev) by the volume of air between the soil surface and the detector. This would tend to bias results low.

- With regard to the soil sampling procedures, the USAF uses an 8 inch coring tool and combines into a single sample, eight samples taken an equal distance from the center sampling point. DEP's sampling of single points and an analysis of previous Air Force data reveals most of the contamination in the top 4 inches. Thus, samples taken to a depth of 8 inches would be biased low.

- DEP's ground level measurements, using a FIDLER (field instrument for detecting low energy radiation) indicate there is significant plutonium contamination within the concertina area but not covered by concrete (Figure 3).

In summary, the BOMARC site is not accurately characterized and additional radiological work is needed to identify areas of contamination as well as the potential for movement of the contamination from the area. This should be accomplished prior to the site being used for any purpose whatever.

REFERENCES

DEP86 Memo from Duncan White, REAS to BOMARC file, October 28, 1986.

DOD84 Department of Defense Narrative Summaries of Accidents Involving Nuclear Weapons, July 10, 1984.

EPA86 Memo from Paul Giardina, Regional Radiation Representative to Robert Hargrove, Chief Federal Activities Section, USEPA Region II, September 11, 1986.

RFW84 Final Report, Phase I Study, McGuire Air Force Base, Burlington County.

RFW86 Installation Restoration Program Phase II, Technical Operation Plan - Stage 2.

USAF86 Results of the 1985 Radiological Survey at Fort Dix BOMARC Site, N.J., USAFOEHL, 86-034RA121ERD.

File Plutonium Bomarc

STATE OF NEW JERSEY
OFFICE OF THE GOVERNOR
TRENTON
08625

THOMAS H. KEAN
GOVERNOR

July 9, 1985

Lee Thomas
Administrator
U.S. Environmental Protection Agency
401 M. Street, S.W.
Washington, D.C. 20460

Dear Mr. Thomas:

I have been informed by my commissioner of Environmental Protection, Robert E. Hughey, of the presence in New Jersey of a military site which contains highly contaminated radioactive material. It is my understanding that the nature of the site along with some general details were revealed at a meeting called by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Defense (DOD) to discuss the possibility of utilizing the contaminated site for interim storage of low-level radioactive materials resulting from an ongoing cleanup. During this review session, Carl Schafer, Director of Environmental Policy for the (DOD), along with Air Force representatives described a 1960 fire at McGuire Air Force Base involving a nuclear device. While we are not yet certain of all the details, it is clear that an undetermined number of acres were contaminated by plutonium which was dispersed during the incident.

We have been assured that remedial action was taken immediately and that on site monitoring has been continuous. However, at this point, we have not received any scientific information on the effectiveness of these measures. Accordingly, the state made an immediate request for all available data at the meeting on July 2nd. This letter is intended to serve as a formal request for the following:

A. The exact location of the site. (of Contam.)

B. An immediate release of all prior scientific data including all relevant information required to

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review potential offsite impacts.

C. Prompt development of a design plan for ultimate cleanup.

Naturally, the state would insist on being an active participant in both the feasibility study and clean-up phases.

We consider this site to be unique in every way and would not want to see it approached conventionally. We believe an expedited program is called for without regard to cost effectiveness formulas or superfund availability.

There are very few instances, particularly with hazardous waste, where we do not learn something with every new problem. This instance is no exception. It serves as a reminder to me and hopefully to you that states deserve a full disclosure of all potential pollution problems on federal facilities. We ask that this occur immediately and in particular, ask that any other potential nuclear contamination or any risk of future contamination problems, of which the state is currently unaware, be shared with the Department of Environmental Protection.

If we have learned anything in New Jersey from being in the forefront of hazardous waste cleanup, it is the problems associated with the release of information are minimal compared with those encountered without full disclosure. Knowing the facts puts us in the position to move forward on cleanups. As public officials, that should and must be our only goal. We look forward to your prompt response.

Sincerely,

Thomas H. Kean
Governor

cc. Caspar W. Weinberger
Secretary of Defense

long term stability of site

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Attachment A

ADM-012

MEMO NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO BOB HAYTON, HSMA

FROM BARRY FRASCO, BCE DATE 7/17/85

SUBJECT ENFORCEMENT HISTORIES FOR FEDERAL FACILITIES IN NEW JERSEY

In response to your telephone request, I have reviewed the BCE files for enforcement actions for various federal facilities within the State. Our files would include any enforcement activities for violations of the Solid Waste Management Act (including both Solid and Hazardous Waste Regulations) and the Spill Compensation and Control Act (Spill Regulation) for the period from 1981 to present. The enforcement histories are as follows:

1. McGuire Air Force Base - See attached addendum

2. Fort Dix:

   a. Field Notice of Violation - Issued 2/22/83 for violations occurring at Solid Waste Facility 0340A.

      Violations Cited: N.J.A.C. 7:26-2.5(m): Failure to cover solid waste with cover material.

      N.J.A.C. 7:26-2.6(b)2: Bulky items protruding through final cover material.

   b. Order - Issued 3/22/83 for the violations cited in the above referenced field Notice of Violation.

   c. Field Notice of Violation - Issued 4/6/83 for violations occurring at Solid Waste Facility 0340A.

      Violations Cited: N.J.A.C. 7:26-2.5(a): Operation of two working faces.

      N.J.A.C. 7:26-2.5(f): Windblown litter.

      N.J.A.C. 7:26-2.5(m): Failure to cover solid waste with cover material.

N.J.A.C. 7:26-2.6(b)2: Bulky items protruding through final cover.

d. Notice of Violation - Issued 11/30/83 for violations as acting as a hazardous waste (TSD) facility.

Violations Cited: N.J.A.C. 7:26-9.10(e): Failure to provide financial assurance for facility closure.

N.J.A.C. 7:26-9.11(c): Failure to provide financial assurance for facility post closure.

N.J.A.C. 7:26-9.13: Failure to provide financial responsibility for claims.

e. Field Notice of Violation - Issued 9/21/84

Violations Cited: N.J.S.A. 58:10-23.11(c): Discharge of a hazardous substance (gasoline and/or kerosene from an underground storage tank).

N.J.S.A. 58:10-23.11(e): Failure to notify the Department of a discharge of a hazardous substance.

NOTE: The Fort Dix landfill is currently a Superfund site. An Administrative Consent Order is currently being prepared by the Office of Regulatory Services which will address closure, post-closure, ground water monitoring, and remedial actions at the site.

3. Picatinny Arsenal (U.S. Army Armament Research and Development Command).

a. An inspection was conducted at this site on 4/17 and 5/11/84. Many violations were noted during this inspection but no field Notice of Violation was issued. A second inspection was conducted at this site on 6/10 and 6/17/85. A field Notice of Violation was issued on 6/17/85 for the following violations:

N.J.A.C. 7:26-7.4(a)4 - Shipment of hazardous waste accompanied by incomplete/improperly completed manifests.

N.J.A.C. 7:26-9.4(b) - Deficiencies in the facility waste analysis plan.

N.J.A.C. 7:26-9.4(d)1i - Hazardous waste stored in containers of poor construction.

N.J.A.C. 7:26-9.4(d)2 - Failure to transfer hazardous waste stored in containers of poor condition to containers in good condition.

N.J.A.C. 7:26-9.4(d)4i - Hazardous waste containers not securely closed.

N.J.A.C. 7:26-9.4(d)4iv - Hazardous waste containers not segregated by waste type.

N.J.A.C. 7:26-9.4(d)4v - Identification labels on hazardous waste containers not clearly visible.

N.J.A.C. 7:26-9.4(d)5 - Hazardous waste container storage area not inspected on a daily basis.

N.J.A.C. 7:26-9.4(e)1 - Reactive waste not separated/ protected from sources of reaction.

N.J.A.C. 7:26-9.4(f) - Deficiencies in the facility inspection schedule.

N.J.A.C. 7:26-9.4(g) - Deficiencies in the hazardous waste management training program for company personnel.

N.J.A.C. 7:26-9.7 et seq. - Deficiencies in the facility contingency plan.

N.J.A.C. 7:26-9.8 et seq. - No facility closure plan.

N.J.A.C. 7:26-9.9 et seq. - No facility post-closure plan.

N.J.A.C. 7:26-11.2(c) - No storage tank inspection schedule.

NOTE: An Administrative Order is currently being prepared which will address the violations noted during the 4/17/84 and 5/11/84, and 6/10, 17/85 inspections.

4. FAA Technical Center

a. Field Notice of Violation - Issued 7/12/84 for the following violations:

N.J.A.C. 7:26-7.4(a)1 - Acting as a generator of hazardous waste without obtaining an EPA ID number.

N.J.A.C. 7:26-7.4(h)1,2 - Failure to notify the Department of missing Part B manifest sections and failure to submit an Exception Report.

N.J.A.C. 7:26-7.6(a)1 - Acting as a hazardous waste facility without obtaining an EPA ID number.

N.J.A.C. 7:26-7.8(b) - Discharge of hazardous waste at a location other than an approved hazardous waste facility.

N.J.A.C. 7:26-9.2(a) - Handling hazardous waste in a manner which would cause a discharge of pollutants.

N.J.A.C. 7:26-9.2(b) - Illegal storage of hazardous waste in an underground tank.

N.J.A.C. 7:26-9.3(b) - Storage of hazardous waste in excess of 90 days.

N.J.A.C. 7:26-9.4(b)1 - No facility waste analysis plan.

N.J.A.C. 7:26-9.4(d)1 - Hazardous waste stored in containers of poor construction.

N.J.A.C. 7:26-9.4(d)4 - Improper use/storage of hazardous waste containers.

N.J.A.C. 7:26-9.4(d)5 - Hazardous waste container storage area not inspected on a daily basis.

N.J.A.C. 7:26-9.4(f)1 - Inadequate facility inspection schedule.

N.J.A.C. 7:26-9.4(f)3 - Failure to have a written facility inspection schedule.

N.J.A.C. 7:26-9.4(g) - Inadequate hazardous waste management training program for company personnel.

N.J.A.C. 7:26-9.4(i) - Failure to keep a written facility operating record.

N.J.A.C. 7:26-9.6(a) - Failure to maintain and operate the facility in a manner that minimizes the release of hazardous waste.

N.J.A.C. 7:26-9.7 et seq. - No facility contingency plan.

N.J.A.C. 7:26-9.8 et seq. - No facility closure plan.

N.J.A.C. 7:26-12.1(a) - Operating a hazardous waste facility without a Departmental permit.

N.J.S.A. 58:10-23.11(c) - Discharge of a hazardous substance.

N.J.S.A. 58:10-23.11(e) - Failure to notify the Department of a discharge of hazardous substances.

NOTE: An Administrative Consent Order is currently being prepared which addresses the above violation.

5. Lakehurst Naval Air Station - ~~No enforcement file.~~

6. Earle Ammunition Depot - No enforcement file.

7. Fort Monmouth

   a. Order - Issued 6/4/81 for violations occurring a Solid Waste Facility 1338B.

      Violations Cited: N.J.A.C. 7:26-2.5(a) - Operating more than one working face.

      N.J.A.C. 7:26-2.5(b) - Failure to spread and compact deposited material to a uniform grade.

      N.J.A.C. 7:26-2.5(i) - Failure to provide adequate equipment for digging, spreading, and compacting.

      N.J.A.C. 7:26-2.5(m) - Failure to cover solid waste with cover material.

      N.J.A.C. 7:26-2.5(q) - Failure to maintain grade and thickness of cover material.

   b. Order - Issued 10/29/81 for violations occurring at Solid Waste Facility 1338B.

      Violations Cited: N.J.A.C. 7:26-2.5(m) - Failure to cover solid waste with cover material.

8. Camp Kilmer - No enforcement file.

9. Raritan Arsenal

   a. Order - Issued 7/28/81 for violations occurring at Solid Waste Facility 1205B.

Violations Cited: N.J.A.C. 7:26-2.2(d) - Operating in an off design area.

N.J.A.C. 7:26-2.5(m) - Failure to cover solid waste with cover material.

b. Field Notice of Violation - Issued 8/5/83 for violations occurring at Solid Waste Facility 1205B.

Violations Cited: N.J.A.C. 7:26-2.5(m) - Failure to cover solid waste with cover material.

N.J.A.C. 7:26-2.5(q) - Failure to maintain the grade/thickness of cover material.

10. CSA Belle Meade - No enforcement file.

11. Military Ocean Terminals - Administrative Order issued 7/8/85 for the following violations:

N.J.A.C. 7:26-7.4(a)4ii - Improper EPA ID number on manifests.

N.J.A.C. 7:26-7.4(h)1 & 2 - Failure to notify the Department and failure to submit Exception Reports to the Department for non-receipt of Part B copies of manifests.

N.J.A.C. 7:26-9.3(a)3 - Failure to place accumulation start date on hazardous waste containers.

N.J.A.C. 7:26-9.4(b)1 - Failure to obtain detailed analyses of representative sample of waste.

N.J.A.C. 7:26-9.4(d)2 - Storage of hazardous waste in containers in danger of leaking.

N.J.A.C. 7:26-9.4(f)3 - Failure to have a written inspection schedule.

N.J.A.C. 7:26-9.4(g) - Failure to have a personnel training program for hazardous waste management.

N.J.A.C. 7:26-9.6(f)4 - Failure to familiarize local hospitals with properties of hazardous waste handled at the facility.

N.J.A.C. 7:26-9.7(h) - Failure to have evacuation plan in facility contingency plan.

N.J.A.C. 7:26-9.7(i)2 - Failure to submit the facility contingency plan to local authorities.

N.J.A.C. 7:26-9.7(g) - Failure to have a list of emergency equipment in the facility contingency plan.

N.J.A.C. 7:26-9.8(c) - Failure to have a written closure plan.

Should you have any questions concerning this matter, please call me at 2-5548.

B. F.

F021:lmc

Addendum to_Memo 7-17-85

McGuire Air Force Base

A. Notice of Violation - issued 10-29-82
Violation Cited: NJAC 7:26 - 7.6 (f)2 - Failure to submit Annual Report

B. Notice of Violation - issued 11-30-83
Violation Cited: NJAC 7:26 - 9.10 (e) - Failure to establish financial assurance for closure.

NJAC 7:26 - 9.11 (c) - Failure to establish financial assurance for post - closure.

NJAC 7:26- 9.13 Failure to demonstrate financial responsibility for claims.

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5/18/87 Kalik 5/18/87

EA-0050
SR EA-0074
TR EA-0074

AN ASSEMBLY RESOLUTION respectfully requesting the Attorney General to institute legal proceedings against the agencies and instrumentalities of the United States Armed Forces with jurisdiction over military installations in New Jersey for failure to comply with all federal and State environmental laws, rules, and regulations at these facilities, and against the United States Environmental Protection Agency for failure to enforce same.

WHEREAS, Over the past several years, it has been widely alleged, and often acknowledged, that hazardous waste disposal practices at many of the United States military installations in New Jersey have been at variance with acceptable standards as established in federal and State statute and regulation; and

WHEREAS, The "Special Committee to Investigate Hazardous Waste Disposal at Military Institutions," created pursuant to Assembly Resolution No. 168 of 1985 to study the problem, discovered or confirmed over 200 toxic waste sites at 11 such facilities, many posing threats to ground and surface waters, some ultimately proven to warrant Superfund status; and

WHEREAS, The many relevant documents which have been solicited but never received, and the several witnesses called but who have failed to appear, that could shed light on the nature, extent, and consequences of the indisputably lax enforcement of applicable environmental laws at these military bases betoken the lack of authority of existing ad hoc legislative bodies to compel federal action and justify the recourse to the courts; and

WHEREAS, Regulations adopted by the Environmental Protection Agency, in response to a suit brought against it by Ohio,

making military bases among other facilities subject to the substantive and procedural requirements of the Resource Conservation and Recovery Act, as well as the codication of the applicability ofthe Comprehensive Environmental Response, Compensation, and Liability Act to federal facilities in the Superfund Amendments and Reauthorization Act of 1986, clearly refute the position that the doctrine of sovereign immunity prevents a state from compelling federal facilities to conform with its applicable laws and that the military is thereby exempt or immune from federal or State jurisdiction; and

WHEREAS, It is imperative that this State, in the interests of public health and safety, proceed with all deliberate speed to curtail the illegal hazardous waste disposal practices that have compromised the environmental integrity of military bases in New Jersey, and compel those who have violated federal or State statute to abate those violations and bring their facilities once again into full compliance with the law; now, therefore,

BE IT RESOLVED by the General Assembly of the State of New Jersey:

That this House respectfully request the Attorney General to institute legal proceedings against the agencies and instrumentalities of the United States Armed Forces with jurisdiction over military installations in New Jersey for failure to comply with all federal and State environmental laws, rules, and regulations at these facilities, and against the United State Environmental Protection Agency for failure to enforce same;

STATEMENT

This resolution would request the Attorney General to initiate

legal proceedings against the United States military for violation of federal and State statutes, rules, and regulations associated with hazardous waste disposal at their bases in New Jersey, and the Environmental Protection Agency for failure to enforce these environmental laws. There is ample evidence that irresponsible and illegal dumping practices have caused extensive contamination at many of these bases, and prompt action is necessary. While legislative efforts have made much progress in identifying the nature and extent of these practices, court authority is necessary to force cleanup and compliance.

HAZARDOUS WASTE

Resolution requesting Attorney General to file suit against US military and EPA for hazardous waste disposal violations and lack of enforcement.

5/15/87/bt
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AR 154
Karcher
5/18/87

EA-0050
SR EA-0074
TR EA-0074

AN ASSEMBLY RESOLUTION granting the Environmental Quality Committee subpoena powers with respect to its review and investigation of the threats to the public health and welfare and to the environment posed by the hazardous waste disposal practices at military installations in New Jersey.

WHEREAS, It has been widely alleged, and commonly acknowledged, that hazardous waste disposal practices at many of the United States military installations in New Jersey have been careless and irresponsible at best, and illegal at worst; and

WHEREAS, Such practices, which have involved the dumping of jet fuel as well as a wide variety of carcinogenic and toxic substances in areas proximate to water supplies and streams, have allegely posed, and continue to pose, a clear danger to both the public health and the environment; and

WHEREAS, Effective action to address the problem has been forestalled not only by the complex and ambiguous legal relationship among the parties involved and questions of federal/State jurisdiction, but by a lack of information about the scope of the practices and the extent and nature of the contamination they have caused; and

WHEREAS, The Environmental Quality Committee has appropriately accorded this problem high priority on its agenda of issues to be addressed and resolved; and

WHEREAS, In order to conduct an investigation that will result in the detailed and comprehensive understanding of the problem necessary for effective action, the Environmental Quality Committee will require the authority to compel the production of all relevant documents, and the appearance of

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knowledgeable witnesses, from the United States Environmental Protection Agency, from various branches of the United States Armed Forces, from the New Jersey Department of Environmental Protection, and from local units of government; now, therefore,

BE IT RESOLVED by the General Assembly of the State of New Jersey:

That the Environmental Quality Committee be endowed with all the powers granted pursuant to chapter 13 of Title 52 of the Revised Statutes, including, but not limited to, the power to subpoena witnesses and compel the production of documents and other information relevant to its review and investigation of hazardous waste disposal practices at military installations located in New Jersey.

STATEMENT

This resolution would grant the Environmental Quality Committee subpoena powers in order to assist in its investigation of allegedly illegal hazardous waste disposal practices at military installations.

HAZARDOUS WASTE

Grants subpoena power to EQ Committee for hazardous waste investigation at military bases.

2564

AR 155
Kalik
5/18/87

5/18/87

EA-0050
SR EA-0074
TR EA-0074

AN ASSEMBLY RESOLUTION respectfully requesting the Speaker of the General Assembly to appoint members to fill the five vacancies on the Special Committee to Investigate Hazardous Waste Disposal at Military Institutions, and to direct the committee to reassemble and complete its work.

WHEREAS, The General Assembly, in response to allegations of irresponsible and possibly illegal hazardous waste disposal practices at the Lakehurst Naval Engineering Center and at other military bases in New Jersey, and pursuant to Assembly Resolution No. 168 of 1985, created the "Special Committee to Investigate Hazardous Waste Disposal at Military Institutions" to study and evaluate the environmental and public health dangers posed by such alleged practices; and

WHEREAS, During the course of its work the last four months of the 1984-1985 legislative session, the Committee uncovered over 200 toxic waste sites at 11 federal facilities throughout New Jersey and identified then present or potential threats to groundwater and surface water associated therewith, many of which posed environmental concerns ultimately proven to warrant Superfund status; and

WHEREAS, In the period since the expiration of the last legislative session and the attendant creation of vacancies on the Committee, efforts to secure additional relevant documents formally requested and to continue the investigation have been hampered by lack of authority and the absence of an appropriate forum; and

WHEREAS, Assembly Resolution No. 168, creating the Special Committee, specifically provides that the committee shall expire only upon the issuance of its final report, a report that has not yet been completed; and

WHEREAS, The concerns which the committee was charged to address are no less urgent today than they were in September of 1985; and

WHEREAS, The Legislature has an affirmative duty of the highest order to ensure that all parties respect the environment and fulfill their oblighation to protect the public health of our citizens; and

WHEREAS, The completion of the work of the committee is an essential first step in fulfilling that duty; now, therefore,

BE IT RESOLVED by the General Assembly of the State of New Jersey:

That the Speaker is respectfully requested to appoint members to fill the vacancies in the "Special Committee to Investigate Hazardous Waste Disposal at Military Institutions" as soon as possible, and to direct the committee to reassemble, complete its work, and issue its final report.

STATEMENT

This resolution requests the Speaker to fill the five vacancies on the Special Committee to Investigate Hazardous Disposal at Military Institutions, which has been dormant since the close of the 1984-5 legislative session, so that the committee can continue its vital work.

HAZARDOUS WASTE

Resolution requesting Speaker to fill vacancies on Special Committee to Investigate Hazardous Waste Disposal at Military Institutions.

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5/19/87jc

EA 0091
SR 0050
TR 0050

AN ACT concerning the enforcement of certain environmental laws on federal facilities.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

1. The State shall, within the limits of its authority to implement, administer, and enforce the "Resource Conservation and Recovery Act of 1976," 42 U.S.C. § 6901 et seq., the "Clean Air Act," 42 U.S.C. § 7401 et seq., and the "Federal Water Pollution Control Act," 33 U.S.C. § 1251 et seq., as those acts have been amended and supplemented, and any State laws, rules, and regulations enacted or adopted pursuant thereto or in coordination therewith, revoke any applicable permit issued by the State thereunder and otherwise enforce those laws, rules, and regulations to the maximum extent permitted by law for a violation thereof occurring at a facility owned or operated by the United States of America, or an agency or instrumentality thereof.

2. This act shall take effect immediately.

STATEMENT

Pursuant to federal law, the State has been authorized to generally implement, administer, and enforce many of the provisions of the federal "Resource Conservation and Recovery Act of 1976," the federal "Clean Air Act," and the "Federal Water Pollution Control Act," as those acts have been amended and supplemented. This bill would require the State, where authorized, to revoke the applicable permit issued by the State pursuant to any of those laws, or any State law, rule, or

regulation enacted or adopted pursuant thereto or in coordination therewith, for a violation thereof occurring at a facility owned or operated by a federal agency. The bill would also require the State to strictly enforce those laws, rules, and regulations to the maximum extent permitted by law in such cases.

Many federal facilities in the State have an egregious track record for violating federal and State environmental laws. These violations often pose a significant threat to the public health and welfare, yet the federal agencies involved often do not fully cooperate with State authorities to rectify them. Additionally, State authorities often do not pursue all of the remedies for such violations available to them under law. This bill would mandate that the State exercise its enforcement authority to the fullest extent in these cases.

HAZARDOUS WASTE (CLEANUP)

Requires strict enforcement of certain environmental laws on federal facilities.

Leonard T. Connors, Jr.

New Jersey State Legislature
OFFICE OF LEGISLATIVE SERVICES
STATE HOUSE ANNEX, CN-068
TRENTON, NEW JERSEY 08625

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May 14, 1987

Honorable Alan J. Karcher, Minority Leader
New Jersey General Assembly
State House Annex
Trenton, New Jersey 08625

Dear Mr. Minority Leader:

You have requested a legal opinion on the following questions:

What is the extent of civilian jurisdiction and authority to enforce federal and State environmental laws regulating hazardous waste disposal activities as those laws apply to federal facilities in New Jersey?

To the extent jurisdiction and authority under federal statutes regulating hazardous waste disposal activities have been delegated to the State, is the State's authority over federal facilities equivalent to its authority over other persons?

You have also requested an "update" of the legal opinion issued December 20, 1985 to Assemblywoman Marlene Lynch Ford (hereinafter "Ford opinion") relating to the authority of the State Legislature to subpoena federal officials, especially personnel of the United States Environmental Protection Agency (hereinafter "EPA") and the United States Department of Defense (hereinafter "DoD"), for the purpose of compelling them, under penalty of contempt, to testify and produce requested documents at legislative proceedings. This update is requested "in light of recent changes in the law of civilian jurisdiction over military facilities/activities/personnel affecting the environment . . . ."

Please be advised that the extent of civilian jurisdiction and authority over federal facilities in regard to hazardous waste disposal activities occurring thereon appears to be considerable; that, with respect to federal hazardous waste disposal law, it appears to be, for the most part, equivalent to the jurisdiction and authority over other persons; and that we see no reason

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to significantly modify the conclusions reached in the Ford opinion with respect to the relationship of the legislative subpoena power to federal officials, despite recent changes in federal hazardous waste disposal law.

I. Civilian Jurisidiction and Authority over Hazardous Waste Disposal Activities at Federal Facilities

The two primary federal statutes regulating hazardous waste disposal activities at federal facilities are the "Resource Conservation and Recovery Act of 1976" (hereinafter "RCRA"), 42 U.S.C. § 6901 et seq., as amended and supplemented by the "Hazardous and Solid Waste Amendments of 1984," (hereinafter "HSWA"), also compiled at 42 U.S.C. § 6901 et seq.,[1] and the "Comprehensive Environmental Response, Compensation, and Liability Act of 1980," 42 U.S.C. § 9601 et seq. (hereinafter "CERCLA"), as amended and supplemented by the "Superfund Amendments and Reauthorization Act of 1986," Pub. L. 99-499, 100 Stat. 1613 (1986) (hereinafter "SARA").[2]

A. RCRA

1. In General

The provision of RCRA generally addressing federal facility compliance with hazardous waste disposal laws is at 42 U.S.C. § 6961, which states:

> Each department, agency, and instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any solid waste management facility or disposal site, or (2) engaged in any activity resulting, or which may result, in the disposal or management of solid waste or hazardous waste shall be subject to, and comply with, all Federal, State, interstate, and local requirements, both substantive and procedural (including any requirement for permits or reporting or any provisions for injunctive

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[1]Unless specifically noted otherwise, references in this opinion to RCRA refer to RCRA as amended and supplemented by HSWA.

[2]SARA is compiled with CERCLA at 42 U.S.C. § 9601 et seq. In order to distinguish the SARA provisions, references thereto will be to the public law sections, with parenthetical references to the corresponding U.S.C. citations. SARA was signed into law on October 17, 1986.

> relief and such sanctions as may be imposed by a court to enforce such relief), respecting control and abatement of solid waste or hazardous waste disposal in the same manner, and to the same extent, as any person is subject to such requirements, including the payment of reasonable service charges. Neither the United States, nor any agent, employee, or officer thereof, shall be immune or exempt from any process or sanction of any State or Federal Court with respect to the enforcement of any such injunctive relief. The President may exempt any solid waste management facility of any department, agency, or instrumentality in the executive branch from compliance with such a requirement if he determines it to be in the paramount interest of the United States to do so. No such exemption shall be granted due to lack of appropriation unless the President shall have specifically requested such appropriation as a part of the budgetary process and the Congress shall have failed to make available such requested appropriation. Any exemption shall be for a period not in excess of one year, but additional exemptions may be granted for periods not to exceed one year upon the President's making a new determination. The President shall report each January to the Congress all exemptions from the requirements of this section granted during the preceding calendar year, together with his reason for granting each such exemption. (Emphasis added.)

In addition, 42 U.S.C. § 6927(c) authorizes the EPA, or a state with an authorized RCRA program, to annually inspect hazardous waste treatment, storage, or disposal facilities owned or operated by a federal agency to ensure compliance with the act and regulations promulgated pursuant thereto.

Under 42 U.S.C. § 6926, the EPA may authorize a state to administer and enforce the RCRA program within the state.[3] Following authorization, the

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[3]The explanation of the RCRA state authorization process provided in the opinion is adapted from the text of a proposed EPA rule addressing RCRA standards limiting air emissions at hazardous waste facilities. See 52 Fed. Reg. 3748, 3763-64 (1987). See also 50 Fed. Reg. 5260, 5260-62 (1985). The standards and requirements for state authorization are set forth at 40 C.F.R. Part 271 (1983).

EPA retains enforcement authority under 42 U.S.C. §§ 6928, 6934, and 6973, although authorized states have primary enforcement responsibility. See Wyckoff Co. v. EPA, 796 F.2d 1197 (9th Cir. 1986).

Prior to enactment of HSWA, a state with final authorization administered its hazardous waste program entirely in lieu of the EPA administering the federal program in that state. The federal requirements no longer applied in the authorized state, and the EPA could not issue permits for any facilities which the state was authorized to issue. When new, more stringent federal requirements and prohibitions were promulgated or enacted, the state was obliged to enact equivalent law within specified time frames. New federal requirements and prohibitions did not take effect in an authorized state until the state adopted the requirements and prohibitions as state law.

In contrast, under 42 U.S.C. § 6926 (g), which was added as part of HSWA, new requirements and prohibitions imposed by HSWA take effect in authorized states at the same time that they take effect in non-authorized states. The EPA is directed to carry out those requirements and prohibitions in authorized states, including the issuance of permits, until the state is granted authorization to do so. Although states must still adopt HSWA related provisions as state law to retain final authorization, the HSWA applies in authorized states in the interim.

On February 7, 1985 the State of New Jersey received final authorization for a RCRA program based upon the original RCRA statute. 50 Fed. Reg. 5260, 5260-62 (1985). However, because of HSWA, there will temporarily be a dual State/federal regulatory program in the State. Id. at 5261. Thus, the EPA noted in its authorization decision for New Jersey that:

> To the extent the authorized State program is unaffected by the HSWA, the State program will operate in lieu of the Federal program. EPA will administer and enforce the portions of the HSWA in New Jersey until the State applies for and receives authorization to do so. Among other things, this will entail the issuance of Federal RCRA permits for those areas in which the State is not yet authorized.
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> Today's approval does not authorize New Jersey to implement any of the HSWA requirements in lieu of EPA, despite that it appears that New Jersey already has in place several of the new requirements imposed by the HSWA.
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> . . . .

> . . . Once New Jersey is authorized to implement a HSWA requirement or prohibition, the State program in that area will operate in lieu of the Federal provision. Until that time New Jersey will assist EPA's implementation of the HSWA under a Cooperative Agreement.

Id. at 5261-62.

It is our understanding from sources at the New Jersey Department of Environmental Protection (hereinafter "DEP") that, since the enactment of HSWA, the State continues to exercise authority to issue "operating permits" for all hazardous waste treatment, storage, or disposal facilities (hereinafter "t, s, or d permits"), but that the EPA issues "corrective action" permits in addition thereto in those situations where they are required. It is also our understanding that the State has yet to receive final authorization to administer and enforce any of the provisions added to RCRA by HSWA. Thus, the EPA currently has primary authority pertaining to HSWA, although the State, by cooperative agreement, may assist in the administration and enforcement of these provisions. 42 U.S.C. § 6926(c).

With regard to federal facilities, a state may regulate them under RCRA to the extent that it has received final authorization for its program from the EPA, and may do so "in the same manner, and to the same extent, as any other person . . . subject to such requirements . . . ." 42 U.S.C. § 6961; H.R. Conf. Rep. No. 99-962, 99th Cong., 2d Sess. 183, 242 (1986) reprinted in 1986 U.S. Code Cong. & Admin. News 3276, 3335 (hereinafter "H.R. Conf. Rep."). It is our understanding from a DEP source that the State currently has authority to regulate federal facilities in the State under RCRA.

Although RCRA permits an authorized state to impose, pursuant to federal, state, interstate, or local law, both substantive and procedural requirements on hazardous waste disposal practices at federal facilities, the courts have narrowly construed the section to permit only the seeking of injunctive relief from a violation of the act. See California v. Walters, 751 F.2d 977 (9th Cir. 1984) (42 U.S.C. § 6961 does not authorize a state to seek criminal sanctions against the Veterans Administration for illegal disposal of "infectious wastes"); Meyer v. United States Coast Guard, 644 F.Supp. 221 (E.D.N.C. 1986) (42 U.S.C. § 6961 does not authorize a state to seek administrative penalties against the Coast Guard for violation of RCRA permit program delegated to states; RCRA seems to contemplate only injunctive relief for such violations). See also Florida Dept. of Environmental Regulation v. Silvex Corp., 606 F.Supp. 159, 163-64 (M.D. Fla. 1985) (42 U.S.C. § 6961 does not authorize suit for damages against United States Navy under state hazardous waste spill act because the liability provisions were not state "requirements" as that term is used in § 6961).

However, 42 U.S.C. § 6972, the "citizens suit" provision of RCRA, can be read to provide an independent waiver of sovereign immunity giving state and local authorities a viable alternative avenue for seeking civil penalties from non-complying federal facilities. Under this section, a court hearing a citizen suit may apply any appropriate civil penalties available under 42 U.S.C. § 6928(a) and (g). Pursuant to 42 U.S.C. § 6903(15), state and local governments are considered to be "persons" for the purposes of § 6972.

As noted in a recent article on the issue, though, § 6972 is limited in several important respects:

> 1) a citizen suit can only be brought in federal district court; 2) any penalties assessed accrue to the benefit of the Federal Treasury, not to the "person" commencing the civil suit; 3) a suit may apparently be brought only against a defendant who is currently in violation of the requirements of the act, and 4) . . . [§6972] only applies to violations of requirements that have become effective pursuant to RCRA. State and local requirements that increase the scope of a state permitting system beyond that required by federal law are not part of the federally-approved program, and therefore cannot be enforced using the citizen suit provision. In short, . . . [§ 6972] does expose a federal facility to an action for civil penalties, but only under limited conditions.

Donnelly and Van Ness, The Warrior and the Druid - The DoD and Environmental Law, 33 Fed. B. News and J. 37, 39 (1986).

Alternatively, it could be argued that § 6972 cannot subject federal facilities to any penalties that are not available pursuant to § 6961 because § 6961 is RCRA's general waiver provision for federal facilities. It is unlikely, however, that each provision will be interpreted to independently provide a partial waiver. See South Carolina Wildlife Fed'n v. Alexander, 457 F.Supp. 118 (D. S.C. 1978) (construing identical language in § 505 of the Clean Water Act, 33 U.S.C. § 1365); Donnelly and Van Ness, supra, at 43, f.n. 19.

2. "Corrective Action" under RCRA

Your request for this legal opinion specifically referred to § 3004(u) of HSWA (42 U.S.C. § 6924(u)) and its application to federal facilities. This section provides that:

> Standards promulgated under this section shall require, and a permit issued after November 8, 1984 by the Administrator or a State shall require, corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage, or disposal facility seeking a permit under this subchapter, regardless of the time at which waste was placed in such unit. Permits issued under section 6925 of this title shall contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action.

Thus, this section arguably could be utilized by the EPA or authorized states[4] to compel cleanups of hazardous waste releases at those federal facilities seeking to obtain t, s, or d permits pursuant to RCRA requirements.

On July 15, 1985, EPA promulgated a final rule codifying statutory changes to its hazardous waste regulations. 50 Fed. Rg. 28702 (1985). In this rule, the EPA interpreted the term "facility" as used in 42 U.S.C. § 6924(u) to mean the entire site under the control of the owner or operator engaged in hazardous waste management, not just the area of the property where the solid or hazardous waste management unit is located. Id. at 28712. However, the EPA also noted that it had not resolved how the definition of "facility" in this section should be interpreted with regard to federal facilities. Id. A narrow interpretation of this definition would effectively limit the EPA and authorized states to, as a precondition for issuing a t, s, or d permit to a federal facility, compelling cleanups only on those portions of the federal agency's property on which a solid or hazardous waste management unit is located, as opposed to all contiguous property under the federal agency's control.

A number of affected parties sued the EPA over this unresolved interpretation in the case of Ohio v. EPA, Civil Action No. 85-1664 (D.C. Cir.). The Attorney General of New Jersey intervened in the case on behalf of the State.

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[4]The State of New Jersey has not been authorized yet to implement 42 U.S.C. § 6924(u).

On June 6, 1986, the State and several other parties withdrew from the case after the EPA had resolved the federal facility issue to their satisfaction on March 5, 1986 with the publication of a "Notice of Policy and Interpretation" at 51 Fed. Reg. 7722 (1986). In this policy notice, the EPA concluded that the corrective action requirement of 42 U.S.C. § 6924(u) should be applied to federal facilities in the same manner as it is applied to a facility owned or operated by a private party and that federal agencies will " . . . operate under the same property-wide definition of 'facility.'" Id.

The EPA also concluded in the policy notice that where contiguous tracts of federal lands are administered by different federal agencies, the property-wide definition of facility would be limited to that area administered by each federal agency. Thus, for example, an Air Force base applying for a t, s, or d facility permit would trigger the corrective action provisions for the entire property administered by the Air Force at that base, but would not trigger those provisions for an Army base located contiguous thereto.

The EPA has published a notice of intent to propose a rule to that effect. 51 Fed. Reg. 7723 (1986). The EPA also has indicated that it intends to propose a rule limiting federal agency responsibility under RCRA for facilities operated on federal lands by private parties possessing "legal ownership interests." Id. Finally, the EPA has noted that it intends to develop rules that:

> . . . would allow federal agencies, subject to EPA approval after consultation with the states, to set priorities for correcting releases from solid waste management units at facilities that they own or operate. These rules would also assure a state's full participation in establishing the priorities as a part of the authorization process. Further, EPA would ensure that any priority setting scheme would not disturb the authorized state's traditional role as the primary issuer of RCRA permits. After a State obtains authorization to implement 3004(u) the State would issue the corrective action portion of a hazardous waste permit in authorized state [sic].

Id. at 7723-24.

However, it is our understanding from an EPA source familiar with federal facility issues that none of these rules is likely to be formally proposed

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in the near future. The various federal agencies affected are instead cooperating informally with each other to resolve these issues in a manner in keeping with the spirit of the policy notice and, therefore, the EPA no longer perceives the need for formal rule-making as originally contemplated.

It should be noted that SARA contains a provision affirming that the corrective action requirements of RCRA (42 U.S.C. § 6924(u)) apply to federal facilities and that nothing in 42 U.S.C. § 9620 (the federal facilities section for SARA) should be construed to affect the obligation of federal agencies to comply with § 6924(u). 42 U.S.C. § 9620(i); H.R. Conf. Rep. at 242.

With regard to the EPA's relationship to the states in generally administering 42 U.S.C. § 6924(u), the EPA on October 23, 1986 released an undated "Draft Strategy for Carrying Out RCRA Provisions Requiring Corrective Actions at Hazardous Waste Facilities." 17 Env't Rep. (BNA) 1013 (October 31, 1986). Section IV of the document is entitled "Federal State Partnership in the Corrective Action Program" and provides:

> As a program delegated in phases, RCRA has always required close coordination between EPA and the States. With the advent of broad-based corrective action authorities, an effective Federal/State partnership is even more important. Because the Agency's new corrective action responsibilities derive from the HSWA amendments, the Federal government has responsibility for implementing the new authorities until states are specifically authorized for corrective action. Consequently, until states are authorized for the new § 3004 (u) authority, all permits incorporating corrective action will have to be issued jointly by EPA and the State. Likewise, only the Federal government is expressly authorized to issue § 3008(h) orders requiring investigation and clean up at interim status facilities. States, however, may have similar authorities under their own laws.
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> EPA intends to give States a considerable opportunity to participate in the corrective action process prior to official authorization. Through their closure regulations, for example, States can compel facilities to undertake various activities to mitigate or eliminate threats to public health or the environment (e.g., waste removal, soil decontamination, capping). Many States also have authority to compel investigation

> or clean up through non-RCRA enforcement authorities such as public nuisance law, state water laws, or state Superfunds.[5] Use of these authorities is encouraged at RCRA facilities provided that states use their own authorities to achieve equivalent response as required by RCRA.
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> Given the varying authorities and responsibilities of Federal and state governments prior to full authorization, joint Federal/state planning will be particularly crucial to program implementation. Regions and states should use the Facility Management Planning process to decide on a facility-specific basis the timing of various corrective action initiatives, which authority(ies) should be used to compel the initiative, and which agency will take responsibility for implementing and overseeing the action. Where non-RCRA state authorities are used to compel corrective action activities, EPA will have ultimate responsibility for ensuring that the activities mandated are consistent with and equivalent to the standards imposed by HSWA.

17 Env't Rep. (BNA) 1068, 1074-75 (October 31, 1986).

B. CERCLA and SARA

Subsection (a) of section 120 of SARA (42 U.S.C. § 9620 (a)) confirms that CERCLA is applicable to federal facilities. It provides, in part, that:

> (a) . . . (1) IN GENERAL - Each department, agency, and instrumentality of the United States (including the executive, legislative, and judicial branches of government) shall be subject to, and comply with, this Act in the same manner and to the same extent, both procedurally and substantively, as any nongovernmental entity, including liability under section 107 of this Act. Nothing in this section shall be construed to affect the liability of any person or entity under sections 106 and 107.

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[5]Federal government agencies may not be subject to these laws in many instances. See section II of this opinion.

102X

> (2) APPLICATION OF REQUIREMENTS TO FEDERAL FACILITIES - All guidelines, rules, regulations, and criteria which are applicable to preliminary assessments carried out under this Act for facilities at which hazardous substances are located, applicable to evaluations of such facilities under the National Contingency Plan, applicable to inclusion on the National Priorities List, or applicable to remedial actions at such facilities shall also be applicable to facilities which are owned or operated by a department, agency or instrumentality of the United States in the same manner and to the extent as such guidelines, rules, regulations, and criteria are applicable to other facilities. No department, agency, or instrumentality of the United States may adopt or utilize any such guidelines, rules, regulations, or criteria which are inconsistent with the guidelines, rules, regulations, and criteria established by the Administrator under this Act.
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> (3) EXCEPTIONS - This subsection shall not apply to the extent otherwise provided in this section with respect to applicable time periods. This subsection shall also not apply to any requirements relating to bonding, insurance, or financial responsibility. Nothing in this Act shall be construed to require a State to comply with section 104(c)(3) in the case of a facility which is owned or operated by any department, agency, or instrumentality of the United States.
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> . . . .
>
> (Emphasis added.)

Thus, this language requires federal facilities to comply with CERCLA/SARA in undertaking remedial actions in the same manner as private sites, except for the provisions concerning financial responsibility and contracts with state governments (42 U.S.C. § 9604 (c)(3)). H.R. Conf. Rep. at 240; Atkeson, Goldberg, Ellrod, and Connors, An Annotated Legislative History of the Superfund Amendments and Reauthorization Act of 1986 (SARA), 16 Envtl L. Rep. (Envtl. L. Inst.), 10363, 10396 (December 1986).

Subsections (c) and (d) of section 120 require the EPA to establish a special federal agency hazardous waste compliance docket, which is to be made available for public inspection. Subsection (e) provides for joint EPA/

federal agency selection ofthe remedy, or selection thereof by the EPA if the EPA and the federal agency are unable to reach agreement.

With regard to subsection (e) of section 120, the House Conference Committee noted:

> Responsibility for selection of a remedial action is shared by the head of the relevant department, agency, or instrumentality and the Administrator. However, the Administrator has the additional responsibility to make an independent determination that the selected remedial action is consister with the National Contingency Plan and is the most appropriate remedial action for the affected facility. The Administrator is required to select the remedial action where there is disagreement.

H.R. Conf. Rep. at 242.

Interagency agreements between the EPA and other federal agencies are in the nature of administrative orders, and, thus, are enforceable and penalties may be assessed for violations thereof. H.R. Conf. Rep. at 242. But see the discussion infra with regard to Executive Order No. 12580.

Subsection (f) of section 120 requires the EPA and other federal agencies responsible for compliance with the section to provide opportunity for state and local input into the planning and selection process for the remedial action. In the case of state officials, the opportunity to participate is to be provided in accordance with section 121.

Section 121 of SARA (42 U.S.C. § 9621 and the note thereunder) establishes a variety of requirements relating to the level of cleanup for remedial actions under CERCLA. It also formalizes the role of the states in the cleanup process for federal facilities as well as other sites. Under subsection (f)(3) thereof a state may challenge a final remedial action plan for a federal facility in federal court if the plan does not attain federal and qualified state standards. Under subsection (e)(2), a state may enforce in federal district court a consent decree imposing any federal or state standard, requirement, or criteria to which a remedial action is required to conform under the act.

Subsection (j) of section 120 of SARA authorizes the President, in the interest of national security and within certain constraints, to waive federal facility compliance with CERCLA/SARA requirements. This "national security waiver is not intended to routinely exempt response actions at Federal facilities from the public health and environmental standards imposed under the Act . . . [nor is it] intended to continue beyond the time required to

protect legitimate security interests." H.R. Conf. Rep. at 243. This waiver appears in other major federal environmental laws. Id. See, e.g., 42 U.S.C. § 6961 (RCRA) (cited to above in section I.A.1. of this opinion). This national security exemption has rarely been used. Donnelly and Van Ness, supra, at 41.

Although enforcement of CERCLA and SARA is largely left to EPA, section 206 of SARA (42 U.S.C. § 9659) does authorize "citizens suits." Under subsection (a) of this section, any person may commence a civil action in federal district court[6]:

> (1) against any person (including the United States and any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution) who is alleged to be in violation of any standard, regulation, condition, requirement, or order which has become effective pursuant to this Act (including any provision of an agreement under section 120, relating to Federal facilities); or
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> (2) against the President or any other officer of the United States (including the Administrator of the Environmental Protection Agency and the Administrator of the ATSDR) where there is alleged a failure of the President or of such other officer to perform any act or duty under this Act, including an act or duty under section 120 (relating to Federal facilities), which is not discretionary with the President or such other officer. (Emphasis added.)

The definition of "person" at 42 U.S.C. § 9601 includes "State"; accordingly, a state may bring a "citizens suit" under section 206.

Subsection (c) of section 206 permits the district court in subsection (a)(1) actions "to enforce the standard, regulation, condition, requirement, or order concerned" (including any provision of an agreement relating to a federal facility), "to order such action as may be necessary to correct the violation, and to impose any civil penalty provided for the violation" (emphasis added). Thus, this subsection appears to provide for a relatively broad waiver of sovereign immunity, broader than that in RCRA as interpreted by the courts (see section I.A.1. of this opinion).

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[6]Venue is established in subsection (b) of 42 U.S.C. § 9659 as the district court for the district in which the alleged violation occurred for actions brought under subsection (a)(1) and as the United States District Court for the District of Columbia for actions brought under subsection (a)(2).

All provisions of CERCLA and SARA relating to federal facilities, including the terms of interagency agreements and records of decisions, are subject to the citizens suit provision. H.R. Conf. Rep. at 243.

The application of CERCLA/SARA to federal facilities has been significantly affected by Executive Order No. 12580, which was issued by President Reagan on January 23, 1987. 52 Fed. Reg. 2923 (1987). The order, among other things, delegates to the EPA responsibility for overseeing cleanups of federal facilities listed on the National Priorities List promulgated pursuant to 42 U.S.C. § 9605 (of CERCLA). However, responsibility for sites not listed on the National Priorities List and removal actions other than emergencies are delegated to the heads of executive departments with jurisdiction, custody, or control ove. the site.

It has been argued that the executive order significantly weakens and undermines the EPA's enforcement and investigative capabilities regarding federal facilities, violates the intent of Congress in several important areas, and appears to deviate from the selection of remedy process set forth in SARA for federal facilities on the National Priorities List.[7] The United States Department of Justice has argued in response at a Congressional hearing recently held by the Oversight and Investigations Subcommittee of the House Energy and Commerce Committee on the issue that the executive order is necessary in part to avoid constitutional questions raised by the prospect of one federal executive agency suing another to enforce federal law. N.Y. Times, April 29, 1987, at A33, col. 1. Because SARA was enacted just over 6 months ago, there are no reported cases interpreting these provisions and there has been no final resolution of this apparent dispute between Congress and the executive branch of the federal government.

It is our understanding that the scheduling of this hearing apparently also caused a delay in the issuance of the final draft of an agreement reached between the EPA and the United States Department of Justice on the enforcement of environmental laws at federal facilities. This agreement was apparently needed to resolve an executive branch interagency dispute over the extent of EPA's authority to bring formal enforcement actions against other federal agencies. 17 Env't Rep. (BNA) 1492, 1492-93 (January 2, 1987). The states will not necessarily be bound by this agreement. Id.

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[7] See 17 Env't Rep. (BNA) 1459 (December 26, 1986) and 17 Env't Rep. (BNA) 1779 (February 20, 1987) for a detailed discussion of these arguments. Copies thereof are attached.

Over and above the requirements of CERCLA and SARA, the DoD must undertake a "Defense Environmental Restoration Program" to restore contaminated facilities, whether or not they are currently in use. Section 211 of SARA (10 U.S.C. §§ 2701-2707 and 2810). As noted in a recent article on SARA, section 211:

> . . . sets aside a budget account to be used for cleanup purposes alone, so that environmental concerns need not compete with other defense purposes; these funds can be used for necessary construction work without going through the cumbersome process normally required to approve military construction projects. In addition, DoD must compile information on treatment and disposal of hazardous material and report to the Department of Health and Human Services . . . .

Atkeson, Goldberg, Ellrod, and Connors, supra, at 10397.

The Defense Environmental Restoration Program is to be carried out subject to, and in a manner consistent with CERCLA and SARA, including sections 117 (public participation), 120, and 121 of SARA. H.R. Conf. Rep. at 279. All response actions are to be carried out in accordance with CERCLA and SARA, including the requirement that the Administrator of the EPA must jointly select the remedial action with the applicable federal agency head. Id. Under the section, the DoD must notify and seek the input of the EPA and state and local authorities when undertaking environmental restoration activities.

With regard to the relationship of CERCLA/SARA to RCRA, when identifying those cleanups that should be included on CERCLA's National Priority List and those that should be undertaken under RCRA's corrective action program, EPA has acknowledged that jurisdiction may lie under both statutes. Hayes, EPA's RCRA, Superfund Programs Are Growing Apart, Not Together, 17 Env't Rep. (BNA) 1504 (January 2, 1987). The agency has established a presumption in favor of RCRA-authorized cleanups for RCRA facilities, but has emphasized that similar cleanup approaches would be followed, regardless of whether a cleanup proceeded under RCRA or CERCLA/SARA. Id. The agency's expressed goal is to develop RCRA corrective action requirements that remove inconsistencies between remedial actions performed under CERCLA/SARA and corrective actions performed under RCRA, although this may be very difficult to achieve in practice. Id. It is our understanding from an EPA source that the EPA may have a tendency to favor a CERCLA/SARA approach whenever possible because it would retain more control of the type and extent of the remedial action selected for a site than it would under a delegated RCRA corrective action program.

II. State Enforcement of State Hazardous Waste Disposal Laws on Federal Facilities

Federal government agencies are subject to state regulatory requirements and enforcement actions only to the extent that Congress has clearly and unambiguously waived the federal government's general immunity therefrom. United States v. Mitchell, 445 U.S. 535, 538 (1980); Hancock v. Train, 426 U.S. 167, 179 (1976). This immunity is derived from the Supremacy Clause of the federal Constitution[8] and the common law doctrine of sovereign immunity. Breen, Federal Supremacy and Sovereign Immunity Waivers in Federal Environmental Law, 15 Envtl. L. Rep. (Envtl L. Inst.) 10326, 10326-27 (October 1985). The federal ". . . government's consent, when given, must be strictly construed and may not be modified by implication." Florida Dept. of Environmental Regulation v. Silvex Corp., supra, 606 F.Supp. at 161 (citing cases).

Thus, the State of New Jersey may only enforce violations of State hazardous waste disposal laws that occur on federal facilities to the extent that the federal government permits it to do so.

The provision of RCRA generally addressing federal facility compliance with state and local hazardous waste disposal laws is at 42 U.S.C. § 6961, which states in relevant part:

> Each department, agency, and instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any solid waste management facility or disposal site, or (2) engaged in any activity resulting, or which may result, in the disposal or management of solid waste or

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[8] Art 6, cl. 2 of the federal Constitution states:

> This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

> hazardous waste shall be subject to, and comply with, all Federal, State, interstate, and local requirements, both substantive and procedural (including any requirement for permits or reporting or any provisions for injunctive relief and such sanctions as may be imposed by a court to enforce such relief), respecting control and abatement of solid waste or hazardous waste disposal in the same manner, and to the same extent, as any person is subject to such requirements, including the payment of reasonable service charges. (Emphasis added.)

The word "requirements" utilized in this section has been narrowly interpreted to mean "objective state standards of control," i.e., "objective and ascertainable state regulations; e.g., state pollution standards or limitations, compliance schedules, emission standards, and control requirements." Florida Dept. of Environmental Regulation v. Silvex Corp., 606 F.Supp. at 163; Breen, supra, at 10328; Note, How Well Can States Enforce Their Environmental Laws When the Polluter is the United States Government?, 18 Rutgers L. J. 123, 137 (1986). Thus, under RCRA, the State may require federal agencies to meet objective state hazardous waste disposal and management standards, whether procedural or substantive, but may only seek injunctive relief from a court for a violation thereof.

In addition, subsection (a)(4) of section 120 of SARA (42 U.S.C. § 9620(a)(4) provides:

> State laws concerning removal and remedial action, including State laws regarding enforcement, shall apply to removal and remedial action at facilities owned or operated by a department, agency, or instrumentality of the United States when such facilities are not included on the National Priorities List. The preceding sentence shall not apply to the extent a State law would apply any standard or requirement to such facilities which is more stringent than the standards and requirements applicable to facilities which are not owned or operated by any such department, agency, or instrumentality.

This subsection, thus, apparently waives sovereign immunity for state laws concerning removal and remedial actions for federal facilities not on the National Priorities List.

III. State Legislative Subpoena Power and Federal Officials

In the Ford opinion we concluded that "there is a question, as yet unresolved by statutory or case law, as to whether the Special Committee has

the authority to compel the testimony of federal officials it has summoned based on principles of sovereign immunity and federal supremacy, absent a specific federal enactment waiving such immunity." At 7. Although the case law and other authorities cited in the opinion were neither directly on point nor binding precedent in this jurisdiction, they were sufficiently persuasive to "raise doubt" as to the enforceability of subpoenas issued by legislative committees to federal officials in this State. Id. at 4.

After conducting additional research, we see no reason to significantly modify the conclusions we reached in that prior opinion. The additional law and authorities studied indicate that it is unlikely that a court would enforce a legislative subpoena issued to a federal official.

The case of United States v. Owlett, 15 F.Supp. 736 (M.D. Pa. 1936), cited and relied upon in the Ford opinion, continues to be the only reported opinion that we can find addressing the issue of the enforceability of a subpoena issued by a state legislative committee to a federal official. However, there is a line of cases addressing the analogous issue of the enforceability of subpoenas issued to federal officials in the context of a court proceeding.[9] See, e.g., United States v. McLeod, 385 F.2d 734 (5th Cir. 1967); Civiletti v. Municipal Court of Los Angeles County, 172 Cal. Rptr. 83 (Ct. App. 1981) (cited in the Ford opinion).

In several of these cases, the federal officials involved relied upon statutory or regulatory directives as the basis for resisting a subpoena issued by, or through the authority of, a state sovereignty. The statute generally cited to is 5 U.S.C. § 301[10], which states, in part, that "[t]he head of an Executive department or military department may prescribe regulations for the government of his department, the conduct of its employees, . . . and the custody, use, and preservation of its records, papers, and property." Many federal agencies have utilized this statute as authority to promulgate regulations generally providing that their personnel, when subpoenaed, shall

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[9]Two of these cases rely in part on Owlett, and note that arguments made therein with regard to a legislative committee's subpoena power apply with equal force in the context of a subpoena issued in conjunction with a court proceeding. See Pennsylvania Turnpike Comm'n v. McGinnes, 179 F. Supp. 578, 582 (E.D. Pa. 1959), aff'd 278 F.2d 330 (3rd Cir. 1960), cert. denied 364 U.S. 820 (1960); United States v. McLeod, 385 F. 2d 734, 752 (5th Cir. 1967).

[10] 5 U.S.C. § 301 superseded a similar section, formerly at 5 U.S.C. § 22, that is cited to in some of the earlier cases on this issue.

respond thereto and respectfully decline to testify or produce the requested documents unless a designated agency official directs otherwise. These regulations have generally been upheld by the courts. See United States ex. rel. Touhy v. Ragen, 340 U.S. 462 (1951) (Department of Justice); United States v. Bizzard, 674 F.2d 1382 (11th Cir. 1982) (Department of Justice); United States Steel Corp. v. Mattingly, 663 F.2d 68 (10th Cir. 1980) (Bureau of Standards); Saunders v. Great Western Sugar Co., 396 F.2d 794 (10th Cir. 1968) (Small Business Administration); Hotel Employees - Hotel Ass'n Pension Fund v. Timperio, 622 F.Supp. 606 (S.D. Fla. 1985) (Department of Labor); Reynolds Metal Co. v. Crowther, 572 F.Supp. 288 (D. Mass. 1982) (Department of Labor). But see Northrop Corp. v. McDonnell Douglas Corp., 751 F.2d 395, 398 f.n. 2 (D.C. Cir. 1984) (D.C. Cir. and 10th Cir. "assume" the nonapplicability of sovereign immunity to a subpoena directed against the government where the government is not a litigant, but the issue was not adequately briefed, and, thus, the court did not rule thereon.)

For the EPA and the DoD similar regulations may be found at 40 C.F.R. § 2.401 et seq. (1985) and 32 C.F.R. § 97.1 et seq. (1985), respectively. EPA's regulations specifically refer to "[s]tate and local legislative and administrative proceedings." 40 C.F.R. § 2.401 (a)(3) and § 2.402 (a). The DoD's regulations are more generally worded. Because of the strong case law precedent upholding similar regulations promulgated by other federal agencies, it is our opinion that these EPA and DoD regulations, if challenged, would be upheld.

As noted in the Ford opinion, the basis for the resistance of federal agencies and officials to the subpoena power of a state sovereignty is rooted in the Supremacy Clause of the federal Constitution[11] and the common law doctrine of sovereign immunity. See McLeod, 385 F.2d. at 751; Civiletti, 172 Cal. Rptr. at 86; Owlett, 15 F.Supp. at 741-43; Breen, supra, at 10326-27. Additionally, as noted by the court in Civiletti, any attempt to compel a federal official to comply with a subpoena by instituting a contempt proceeding would likely "founder like the Titanic on the hard rock of sovereign immunity." 172 Cal. Rptr. at 86.

Thus, it is our opinion that it is unlikely that the Legislature's subpoena power would be enforceable when exercised for the purpose of attempting to compel the appearance of federal officials at legislative proceedings.

Our opinion is not altered by the fact that recent changes to RCRA and CERCLA have increased a state's ability to control or influence hazardous waste disposal activities at federal facilities.

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[11] See supra note 8.

Only Congress can compromise federal supremacy and sovereign immunity, and an authorization of state regulation is found only when, and to the extent, there is a clear congressional mandate or specific congressional action that makes this authorization of state regulation "clear and unambiguous." Hancock v. Train, 426 U.S. at 179; Breen, supra, at 10326-27.

Thus, waivers of sovereign immunity have usually been narrowly construed by the courts. Florida Dept. of Environmental Regulation v. Silvex Corp., 606 F.Supp. at 161. Consequently, because there is nothing in the waiver of sovereign immunity sections of RCRA and CERCLA/SARA discussed above that could be regarded as explicitly permitting state legislative inquiries into any kinds of activities occurring on federal facilities, it continues to be our opinion that it is unlikely that a court would enforce such inquiries absent the agency's consent.

IV. Conclusion

It is our opinion that the extent of civilian jurisdiction and authority over federal facilities in regard to hazardous waste disposal activities occurring thereon appears to be considerable; that, with respect to federal hazardous waste disposal law, it appears to be, for the most part, equivalent to the jurisdiction and authority over other persons; and that we see no reason to significantly modify the conclusions reached in the Ford opinion with respect to the relationship of the legislative subpoena power to federal officials, despite recent changes in federal hazardous waste disposal law.

Very truly yours,

Albert Porroni
Legislative Counsel

By: Jeffrey T. Climpson
Jeffrey T. Climpson
Deputy Legislative Counsel

AP:C/sl
Enclosures (2)

17 Env't Rep. (BNA) 1459 (December 26, 1986)

Current Developments

Hazardous Waste

OMB TO RETAIN AUTHORITY ON NCP CHANGES; FLORIO SCORES DELAY OVER EXECUTIVE ORDER

The Office of Management and Budget will continue to be able to make changes to proposed revisions of the superfund program's National Contingency Plan, according to Environmental Protection Agency and congressional sources.

The Budget Office and EPA are close to final agreement on an executive order delegating authority to federal agencies to carry out various portions of the program (Current Developments, Dec. 19, p. 1411).

Rep. James J. Florio (D-NJ), chairman of the House Energy and Commerce Subcommittee on Commerce, Transportation and Tourism, criticized OMB's delay in issuing an executive order as well as the positions it took on some of the issues involved in delegation of authority. He voiced his complaints Dec. 16 in letters to OMB Director James C. Miller III and EPA Administrator Lee M. Thomas.

Other issues cited by Florio were EPA's ability to oversee cleanups at federal facilities and to assess non-compliance penalties against federal agencies. The Budget Office and EPA have reached agreement on three issues cited in Florio's letter, but still are working on other provisions in the Executive Order, OMB spokesman Edwin Dale Jr. told BNA Dec. 22.

Review of Contingency Plan

In his letter, Florio noted that OMB was given the authority to approve or disapprove revisions to the National Contingency Plan in its draft version of the order. A draft version prepared by EPA specified that the OMB could only review proposed changes to the contingency plan, which determines how hazardous waste site cleanups are performed.

Florio said OMB operates without regard to the procedural and substantive safeguards that afford due process to all those in EPA rulemakings. "To grant an agency that operates without such safeguards the ability to reverse, without public notice or comment, any regulatory decision is both unwarranted and unacceptable," he said.

Florio asked Miller for a full statement of the final policy to be recommended to President Reagan regarding OMB review of agency regulatory decisions along with any documents reflecting the legal and policy justifications for the position that may have circulated between the Budget Office and EPA.

Federal Facilities 'Flouts' Congress

In cleanups at federal sites, the OMB draft order would delegate all authority to the heads of the various military services and other civilian agencies that created the sites, he said.

"In contrast, the EPA staff draft would give supervisory authority over such cleanups to EPA, the agency in government that has the expertise to ensure that such work is being conducted properly," according to Florio.

An EPA official told BNA Dec. 16 that it had been agreed that EPA would not supervise the cleanup work at sites not on the National Priorities List.

Florio maintained that "the dismal track record of other agencies and departments in addressing the federal facility waste site problem" motivated Congress to adopt a series of provisions to force such agencies to deal quickly with the thousands of waste sites on federal lands, he said.

The superfund amendments made EPA the supervisor and final arbiter of federal facility cleanups and the Budget Office's effort to restrict this role "flouts this clear congressional intent," he said.

Florio also noted that the OMB draft would withhold from EPA authority to assess penalties for continued non-compliance, while the EPA staff draft would permit the environmental agency to use its full enforcement authorities in such cases. EPA and congressional sources said the penalty issue has been "dropped" and will not be addressed in the Executive Order.

Litigation

JOHNS-MANVILLE AGREES TO PAY $3 MILLION TO SETTLE FEDERAL SUIT ON ASBESTOS CLEANUP

BOSTON — (By a BNA Staff Correspondent) — The Johns-Manville Corp. agreed to pay $3 million to the federal government to settle claims for costs incurred or expected to be incurred in cleaning up 23 asbestos sites in Massachusetts and New Hampshire, under terms of a settlement announced Dec. 9 by the Environmental Protection Agency.

EPA spokesman Phil Boxell told BNA that the $3 million will cover slightly more than half of the costs the agency expects to incur while cleaning up the sites. Additional funds for the cleanup may come from the federal superfund, he said (*U.S. v. Johns-Manville Corp.*, SDNY, No. 85-628A).

Under the settlement, EPA agreed not to seek further funds from Johns-Manville for any future recovery costs borne by the agency at the sites. However, EPA is not precluded from seeking additional money if new sites are discovered and cleanup costs are incurred, Boxell said.

The agency sued Johns-Manville in 1981 under the Resource Conservation and Recovery Act to force the company to remove or cover asbestos on several properties. In 1982, the company filed a petition for reorganization and sought protection from a federal bankruptcy court in New York (Current Developments, Nov. 26, 1982, p. 1174).

22 Asbestos Sites in New Hampshire

EPA regional administrator Michael Deland said the government expects to spend $4.6 million by the time the cleanup is complete at the 22 sites located in Hudson and Nashua, N.H. In addition, Deland said the agency has incurred an additional $1.3 million in costs at the Iron Horse Park industrial site in North Billerica, Mass.

Boxell said the source of most of the asbestos discovered at the various New Hampshire sites was a Johns-Manville asbestos manufacturing plant in Nashua. According to the agency, it was quite common to use scrap materials from the plant to fill lowlands.

17 Env't Rep. (BNA) 1779 (February 20, 1987)

Current Developments

Hazardous Waste

DINGELL, ECKART CRITICIZE EXECUTIVE ORDER ON DELEGATION OF SUPERFUND PROGRAM AUTHORITY

An executive order prepared by the Office of Management and Budget and signed by President Reagan Jan. 23 delegating authority to the Environmental Protection Agency and other agencies to carry out the superfund program may weaken and undermine the recently revised statute, Reps. John D. Dingell (D-Mich) and Dennis Eckart (D-Ohio) charged in a Feb. 10 letter to EPA Administrator Lee M. Thomas.

Dingell, who is chairman of the House Energy and Commerce Committee, chaired a House-Senate conference panel that resolved the differing versions of reauthorization legislation (HR 2005) in 1986. Eckart is a member of the committee and also played a key role in superfund's reauthorization.

"It appears that the Executive Order [No. 12580] significantly weakens and undermines the Environmental Protection Agency's enforcement and investigative capabilities regarding federal facilities and violates the intent of Congress in several important areas," the letter asserted.

Further, the order appears to deviate from the selection of remedy process set forth in the Superfund Amendments and Reauthorization Act of 1986 (SARA) for federal facilities on the National Priorities List, the legislators said (Current Developments, Jan. 30, p. 1659).

Stronger EPA Role Said Intended

Dingell and Eckart said the revised law provides for the administrative assessment of civil penalties against federal agencies for violation of inter-agency agreements pertaining to federal facility cleanups. "However, the order failed to delegate these authorities to the EPA Administrator as Congress intended," the letter said.

The legislative history of the superfund amendments "clearly evidences congressional intent for EPA to perform a much stronger role in taking enforcement actions and selecting proper response actions at federal facilities," the letter continued.

Under the language of the executive order, the abatement action authority of Section 106(a) of the revised law may be used against executive departments and agencies only with the concurrence of the U.S. attorney general, which constitutes a new limit on EPA authority, the letter from Dingell and Eckart said.

The revised law contains enhanced authority for entry, inspection, and pollutant sampling on private property, but the order again conditions EPA's use of these authorities against executive departments or agencies upon concurrence of the attorney general.

Section 120 of the superfund amendments provides for a joint selection of remedy process with ultimate authority retained by the EPA administrator in cases in which a joint decision cannot be reached. Neither the statutory language nor the statement of managers provides for any involvement by OMB, the legislators said. However, the executive order states that the OMB director "shall facilitate resolution of any issues," the letter said.

The letter from Dingell and Eckart asks Thomas to cite statutory provisions or legislative history to support the restrictions cited and to respond by Feb. 23.

Budget

THOMAS HALTS PLAN TO USE SUPERFUND MONEY TO CARRY OUT COMMUNITY RIGHT-TO-KNOW PROGRAM

A plan to use superfund program funds for the community right-to-know program has been halted after congressional criticism of the plan put forward by Environmental Protection Agency Administrator Lee M. Thomas, agency sources told BNA Feb. 18.

Rep. John D. Dingell (D-Mich) "gave clear signals that he did not want superfund money used for Title III of the law," an Office of Solid Waste and Emergency Response staff member said. Dingell chairs the House Energy and Commerce Committee and headed a conference panel that resolved the House and Senate versions of superfund legislation during 1986.

New Entries

Please see Pending Litigation Table of Contents for subsequent entries in these cases

[1145] Natural Resources Defense Council, Inc. v. Hodel

No. 86-[illegible] (9th Cir. appellants' brief filed June 9, 1986)

The Natural Resources Defense Council (NRDC) appeals a district court decision, 16 ELR 20509, holding that the Bureau of Land Management (BLM) did not violate the National Environmental Policy Act (NEPA), the Federal Land Policy and Management Act (FLPMA), the Public Rangeland Improvement Act (PRIA), or the Taylor Grazing Act in its preparation of a comprehensive grazing management plan for public lands in Nevada. NRDC argues that the BLM plan does not comply with NEPA because the decision to maintain existing grazing levels was made prior to the environmental impact statement's (EIS's) preparation, and that the EIS neither considered reasonable alternatives to improve degraded range conditions nor included sufficient information regarding grazing capacity for a reasoned decision. The appellants also contend that the BLM plan fails to allocate forage among competing uses in order to eliminate overgrazing, and that it lacks specific, identified objectives to guide and control future management decisions. The government appellees contend that the NRDC's argument is really that the BLM has a mandatory, nondiscretionary duty to make immediate reductions in livestock grazing levels because of degraded conditions. The appellees characterize the NRDC's complaint as a challenge to the methods selected by the BLM in the EIS to improve range conditions, and argue that such land management decisions by the BLM are committed to the Bureau's discretion. BLM's determination that the available data was inaccurate and could not be relied on to immediately make grazing level adjustments, and instead to implement less drastic management alternatives, to monitor conditions, and to gather reliable data for future grazing level adjustments, was all that could be required.

A. Appellants' Brief (filed June 9, 1986)

1. The BLM's EIS fails to comply with the requirements of NEPA because:

(a) NEPA requires that grazing EISs analyze the environmental impacts of issuing particular grazing permits;

(b) BLM violated NEPA by deciding to perpetuate existing grazing levels before the EIS was prepared;

(c) the EIS fails to analyze a reasonable range of alternatives, fails to analyze any alternative that would significantly improve resource conditions, and fails to consider the "no grazing" alternative; and

(d) the EIS fails to include essential information, including grazing capacity information and monitoring data.

2. The BLM's grazing plan fails to allocate forage and to establish specific resource objectives and constraints as required by law because:

(a) The district court's ruling upholding the plan was based on erroneous factual premises;

(b) the grazing plan fails to allocate forage and to eliminate overgrazing as required by law; and

(c) the plan lacks specific objectives and fails to direct and control livestock grazing use.

3. Appellants are not asking the court to become the "rangemaster" for public lands, but only to require BLM to comply with the law.

B. Appellees' Brief (filed July 25, 1986)

1. The BLM's EIS complies with NEPA because:

(a) NEPA case law does not demand the specific proposal and analysis of each individual grazing permit;

(b) BLM did not decide how it would manage livestock grazing before preparing the EIS;

(c) the EIS discusses a reasonable range of alternatives, properly analyzed alternatives to improve conditions, and the "no action" alternative is not the elimination of all grazing; and

(d) the EIS analyzes all necessary information.

2. The district court properly held that grazing plan decisions are within BLM's discretion as established by the FLPMA and PRIA because:

(a) the district court made no improper factual assumptions;

(b) there is no mandatory duty to make immediate livestock grazing reductions; and

(c) BLM's grazing plan sets comprehensive planning objectives.

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Documents Available from ELR*

A. Appellants' Brief (52 pp. $9.50, ELR Order No. 1145-A)
B. Appellees' Brief (54 pp. $9.50, ELR Order No. 1145-B)

*A $5.00 handling charge will be applied to each individual order, regardless of the number of documents ordered.

[1146] State v. United States Department of the Army

No. 86CV19549 (Colo. Dist. Ct. complaint filed Nov. 14, 1986)

The state of Colorado files suit alleging that the Army has violated the groundwater monitoring regulations in Colorado's Resource Conservation and Recovery Act (RCRA) program at the Rocky Mountain Arsenal. The state seeks to enjoin the Army from continuing its violations of these regulations, to require the Army to remedy the effects of its past violations, and to require the imposition of civil penalties for any future violations. The Army has used the Arsenal since 1942 to manufacture, store, and dispose of chemical munitions and other hazardous substances. The federal government also has leased certain property at the Arsenal to private industry. In December 1983, the federal government sued Shell Oil Company, one of the primary lessees, for response costs and natural resource damages under §107 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). ELR PEND. LIT. 65808. Colorado simultaneously sued the federal government and Shell in federal court for natural resource damages under CERCLA. In March 1985, the federal district court, 15 ELR 20337, consolidated the CERCLA actions brought by the federal government and Colorado against Shell. Colorado now files suit in state court alleging that the Army has violated the state's RCRA program at the Arsenal.

A. Complaint (filed Nov. 14, 1986)

1. The groundwater monitoring program instituted by the Army in 1983 is in violation of Colorado's RCRA regulations because:

(a) the program does not include sufficient monitoring wells upgradient of the waste management area that yield groundwater samples that are representative of background groundwater quality in the uppermost aquifer underlying the facility;

115X

(b) the Army has failed to submit a specific groundwater monitoring plan;

(c) the Army's monitoring program does not have enough wells to determine the rate and extent of groundwater contamination and does not include sampling for many toxic chemicals that are leaking into the groundwater; and

(d) the Army's sampling and reporting is inadequate.

2. The court should:

(a) enjoin the Army from further violations of Colorado's hazardous waste management regulations;

(b) require the Army to take actions necessary to remedy the effects of past violations, including examination of the integrity of monitoring wells and the development of an adequate groundwater sampling plan; and

(c) pay civil penalties for any future violations of the regulations.

B. Plaintiff's Memorandum in Support of its Motion for Preliminary Injunction (filed Nov. 14, 1986)

1. The state is entitled to the requested injunction upon a showing that there has been a violation of the Colorado Hazardous Waste Management Act and need not make the traditional equitable showings, because:

(a) irreparable harm and inadequacy of legal remedies need not be shown where a statute provides for injunctive relief; and

(b) the state is seeking to enjoin acts that threaten to endanger the public health, safety, and the environment.

2. The Army is strictly liable for violations of Colorado's groundwater monitoring regulations, since the plain language of the statute and regulations requires compliance without regard to fault or scienter.

3. The Army is in violation of Colorado's groundwater monitoring regulations because the Army has failed to:

(a) install, designate and/or monitor appropriate upgradient groundwater wells;

(b) submit a specific plan for an adequate groundwater quality assessment program;

(c) adequately determine the impact on groundwater quality; and

(d) adequately monitor and report the impact on groundwater.

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Documents Available from ELR*

A. Complaint (14 pp. $3.50, ELR Order No. 1146-A).

B. Plaintiff's Memorandum in Support of its Motion for Preliminary Injunction (31 pp. $6.00, ELR Order No. 1146-B).

C. Plaintiff's Motion for Preliminary Injunction (not digested) (5 pp. $2.00, ELR Order No. 1146-C).

***A $5.00 handling charge will be applied to each individual order, regardless of the number of documents ordered.**

[1147] United Technologies Corp. v. United States Environmental Protection Agency

No. 1654 and consolidated cases (D.C. Cir. petitioners' brief filed June 2, 1986)

A number of manufacturing companies challenge the Environmental Protection Agency's (EPA's) final rule expanding the definition of "facility" under the Resource Conservation and Recovery Act (RCRA) and broadly interpreting the permit requirements for such facilities under the 1984 RCRA Amendments, and several environmental groups challenge the rule for not going far enough. EPA promulgated regulations on July 15, 1985, interpreting the 1984 Amendments to allow it to define "facility" as including not only the portion of an industrial site currently being used for hazardous waste management, but also the surrounding area under the ownership or control of the facility operator. The industry petitioners and intervenors contend that this definition results in RCRA's corrective action provisions (§3004(u)) being made applicable to portions of manufacturing and production plants not covered by the Act. The industry petitioners and intervenors allege that EPA's interpretation exceeds the scope of its authority and that the regulations violate the notice and opportunity for comment provisions of the Administrative Procedure Act (APA). In its response, EPA contends that Congress intended a broad definition to be applied to the corrective action provisions and that the rule was an interpretative rule that was not subject to the APA's notice and comment requirements.

A. Joint Brief of Industry Petitioners and Intervenors (filed June 2, 1986)

1. EPA's failure to provide prior notice and an opportunity to comment on its final rule violated the APA because:

(a) EPA's preamble to the regulation acknowledged that it was issuing a substantive rule;

(b) the APA requires that rulemakings provide for notice and opportunity to comment before substantive regulations are adopted;

(c) neither RCRA §3010(b), the public policy objectives of protecting human health and the environment, nor EPA's statements that it reduced the need for public comment by codifying the exact statutory language for most of the provisions satisfy the exacting criteria for a good cause exception pursuant to APA §553(b) to the public notice and comment requirements; and

(d) EPA could have fulfilled its desire to give immediate guidance to the regulated community and still have time for the receipt of public comment by issuing proposed rules prior to the issuance of a final rule.

2. EPA's inclusion of those portions of industrial properties that do not treat, store, or dispose of hazardous waste for purposes of corrective action under RCRA §3004(u) violates the Act because:

(a) EPA's assertion in the preamble to the final rule that it intends the term "facility" to include more than the portion of a property at which hazardous waste units are located is a radical departure from EPA's previous duly promulgated definition;

(b) EPA's redefinition is resulting and will result in extensive and costly corrective action measures being required where none is necessary; and

(c) EPA's justification for the definition change contravenes the intent of Congress, since Congress used language paralleling EPA's previously promulgated definition in the 1984 Amendments.

3. EPA contravened the clear intent of Congress when it ignored plain language in the 1984 Amendments and interpreted §3004(o)(1)(A) to apply to all facilities receiving a permit after November 8, 1984, even though §3004(o)(1)(A) specifies that certain minimum technological requirements relating to double liners, leachate collection systems, and groundwater monitoring do not apply to owners of hazardous waste management units that filed applications for operating permits before that date.

4. EPA violated the plain language of RCRA when it extended the corrective action requirements of §3004(u) to underground injection wells that are regulated under the Safe Drinking Water Act.

5. EPA exceeded its authority when it interpreted the corrective action provisions of §3004(u) to apply to facilities that elect to close down their hazardous waste management operations rather than to seek operating permits.

B. Brief for Respondent (filed Aug. 6, 1986)

1. EPA complied with all applicable requirements of the APA since:

(a) the codification rules and the statements in the preamble are interpretative rules and not subject to notice and comment procedures; and

(b) even if the codification rules were legislative rules, EPA properly found that good cause existed for waiving the notice and comment requirements.

Let's protect our earth

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
John J. Trela, Ph.D., Acting Director
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MAY 20 1987

Hon. John O. Bennett, Chairman
Assembly Environmental Quality Committee
New Jersey State Legislature
State House Annex, CN-068
Trenton, NJ 08625

Dear Assemblyman Bennett:

Re: Department of Defense Facilities

Pursuant to your request at the hearing on May 1, 1987 and to your subsequent written questions, enclosed please find information relative to the following facilities:

Jurisdiction - General

1. The Department has a supervisory role only when the site is on the NPL, is a State-lead and has an IAG (e.g., Fort Dix landfill).

2. The Department's access to documents and studies depends on the particular branch of the DOD. Sometimes DEP receives them at the same time as base personnel, other times base personnel review them prior to submission to EPA/DEP.

3. The Department reviews and comments on all reports and data that we receive. We do not know of any specific requirement that the facility responds to these comments.

4. Some monitoring well data may have limited value in selecting remedial actions due to the age of the data (i.e., a plume of contaminated ground water may have moved substantially in the one to two years before DEP receives the data). However, continued monitoring and modifications during the design phase frequently overcome this limitation.

5. The Department has an IAG with Fort Dix for the landfill only.

6. RCRA Corrective Action authorities like 3008(h) and 3004(u) would apply, but New Jersey is not yet authorized to administer these programs.

7. Section 120 of SARA requires that the Administrator enter into an IAG within 180 days of the completion of the RI/FS and that "substantial physical on-site remedial action shall be commenced at each facility not later than 15 months after completion" of the RI/FS. Beyond this, no specific enforcement duties exist.

8. The best legal position for the state to be in depends on the enforceability of the IAG (which has yet to be determined). However, our limited experience has shown that the one site with an IAG has completed an RI/FS sooner than all the others.

Fort Monmouth/Fort Hancock Neutron Generator Facility

An updated Phase I Initial Installation Assessment (IIA) of Fort Monmouth was received on March 26, 1987 from the USEPA. The Phase I IIA was to assess the potential for hazardous substances to migrate off the Fort Monmouth areas. The IIA is based on record reviews, Fort Monmouth personnel interviews and a site tour. Samples as requested by NJDEP in September 1986 were not taken. The Army, based on the updated Phase I IIA, is of the opinion that a remedial investigation/feasibility study is not required.

Enclosed please find an updated Fort Monmouth fact sheet.

With respect to the Fort Hancock Neutron Generator Facility, the NJDEP together with the Nuclear Regulatory Commission conducted a closeout inspection of the facility. As a result of the inspection, the facility meets the NRC criteria for unrestricted use. We are satisfied that the facility has no radioactively contaminated sites (see enclosed correspondence).

Enclosures include:

Fort Monmouth

a) Fact sheet dated May 4, 1987 providing a background and status of the facility

b) Updated Phase I Initial Installation Assessment (IIA) prepared by Environmental Science and Engineering, dated November 1986 for the U.S. Army.

c) NJDEP correspondence to USEPA dated April 16, 1987 submitting review comments on the updated Phase I - IIA.

d) USEPA correspondence to Colonel Robert Hackett dated May 4, 1987 submitting DEP and EPA review comments on the updated Phase I - IIA.

Fort Hancock Neutron Generator Facility

a) U.S. Army correspondence to NJDEP dated September 25, 1986 summarizing the close out radiation survey.

b) U.S. Army correspondence to USEPA dated March 4, 1987 providing U.S. Nuclear Regulatory Commission letter releasing the facility for unrestricted use.

McGuire Air Force Base - Plumstead

1. Sample results from February/March are unknown - base personnel have stated that the earliest results will be available is February 1988.

2. Soil sampling results are not yet known and ground water samples have not yet been taken.

3. No sampling of the six wells has occurred because the Air Force changed their sampling/analysis contractor and has had delays in obtaining contract approvals.

4. Water quality data that is a year old is better than no data at all (which is the current status for the site).

5. and 6. The best way to assure compliance with SARA is to list Federal Facilities on the NPL. It is our understanding that McGuire will be proposed as an NPL site in the near future by EPA (fall, 1987).

Fort Dix Landfill

1. Alternatives being considered range from no action to landfill closure with pumping and treatment of ground water.

2. Wells are needed in one additional area and they will be required. We do not anticipate that the results of additional wells will impact the choice of the remedial action alternative.

3. Results are enclosed.

4. Base personnel at Fort Dix have the responsibility of hiring the contractor and overseeing the studies, whereas at other sites this responsibility lies in headquarters.
   - Additionally, we have an IAG with Fort Dix.

5. The remainder of the site will be proposed on the NPL in June 1987 (per EPA). The landfill is on the NPL.

Military Ocean Terminal Bayonne

1. The Scope of Work that the EPA says it forwarded to DEP in December of 1986 is probably the Scope of Work section of the Sampling Design Plan which was forwarded to the DEP by the Army, USATHAMA in December 1986, at the request of the EPA.

This is the Sampling Plan referred to in the status report. It's review by the EPA and DEP has been completed.

2. This facility was visited by DEP personnel in March 4 and 5, 1987. The trip was not designed to be a facility inspection. It's purpose primarily was to familiarize the DEP review team with the potential areas of concern and to assist in the evaluation of the adequacy of the Scope of Work proposed. Further, it was determined that a NJPDES Permit was required but had not been obtained for the landfill and for the septic system leach field.

3. DEP was informed of the findings of the RCRA inspection conducted in June of 1986 and the NOV that was issued by EPA as a result of the inspection. The EPA findings were in concurrence with the findings of the DEP.

Naval Weapons Station Earle - Colts Neck

1. There is one round of data so far - the Navy informed DEP that this data was sent to EPA in early May, 1987. EPA indicates that they have not yet received it, but will forward it to DEP when available.

2. Resampling of surface water/sediments will be done as soon as the Navy awards a contract for split sampling analysis (possibly by July 1987).

3. SARA requirements would require that any previously negotiated IAG be revised. This site is also expected to be proposed for the NPL soon. DEP has not yet determined whether it would be a party to an IAG.

FAA Technical Center - Pomona

1. Six additional sites were discovered during the background investigation for the focused Feasibility Study/Remedial Investigation. A work plan was prepared by TRC Environmental Consultants, Inc. for the 6 sites. Sampling is planned for this summer and will be conducted by TRC.

2. The data submitted was for a jet fuel spill that occurred near Building 204 in 1985. The contaminated soil was excavated and the submitted results were for confirmation sampling. The certificate of analysis indicated that for Pentachlorophenol no contaminants were detected above 50 micrograms per liter, not 50 milligrams per liter.

3. A-280 water quality criteria does not apply under these circumstances.

4. FAA has been conducting extensive studies and working in close cooperation with DEP and EPA. DEP does not believe

there is any reason to recommend this site for inclusion on the NPL.

Naval Air Propulsion Center - Trenton

1. The Navy just submitted a work plan for a confirmation study of 8 areas of this site that includes monitoring well installation and sampling. Sampling is expected to be conducted some time in the fall of 1987.

2. DEP does not have sufficient data to recommend inclusion of this facility on the NPL.

Picatinny Arsenal

1. There are no guaranteed assurances that continued ground water use will not ultimately lead to off-site migration and contamination of other potable wells, however, since the potable wells at PTA have been shut down the movement of contaminated water has been slowed and spread of contamination proportionally reduced. Also, residential wells off-site of PTA are a few miles from the contamination sources (albeit down-gradient) and they draw relatively small amounts of water from the aquifer which is replenished by local percolation. Recent sampling indicates no contamination problem at the wells. (There are three aquifers underlying the area and it is not known which aquifer these wells tap.)

2. Two sludge lagoon near Building 24 were excavated and over 532 cy of material was disposed (as hazardous waste) without DEP approval. The soil was contaminated with heavy metals and methylene chloride. Ground water monitoring wells show concentrations of metals and organic contaminants.

   A sludge drying bed and two unlined, sand filter beds (lagoons) were located near Building 95. These impoundments were removed in 1981 without NJDEP approval or the submission of closure plans. About 315 cy of materials was shipped off as hazardous waste. Soil analyses conducted at time of excavation indicated presences of heavy metals and an organics PCE and ethylbenzene. The ground water wells in the area indicates higher metal concentrations and organics, e.g., TCE 243 ppb; TCA, 1780 ppb; PCE, 386 ppb.

   Closure and post-closure plans for these sites have been requested by NJDEP/DWR/GWQC and are awaited. NJDEP has inspected the sites and determined that the closures were not done properly.

3. The samples from eight residential wells along Route #15 were taken in March 1987 by NJDEP and the results (verbal) indicated organic volatiles and acid/base/neutrals extractables were non-detected.

4. USEPA is very strongly inclined to add PTA to the NPL.

Naval Air Engineering Center - Lakehurst

1. The landfill activities began prior to the effective date of the Act, therefore, 404 permits were not required.

2. New samples are expected to be conducted in the fall of 1987.

3. This site is ranked #28 of sites in New Jersey on the NPL.

If you have any additional questions, please contact Melinda Dower of my staff at (609) 633-0701.

Sincerely,

John J. Trela, Ph.D.
Director

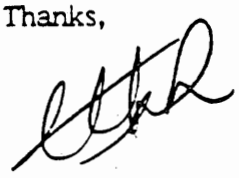
JJT:sk

Enclosure

cc: Michael Catania, Deputy Commissioner
Karen Jentis, Chief, Bureau of Case Management
Robert Hargrove, EPA

Dear Mike,

I am writing to follow up our telephone conversation of last week and am forwarding the questions that John is interested in getting answers to on the 21st. I know this is short notice but I would suspect that the divisions have the answers. Thanks,



JURISDICTION - General

Does the Department have any supervisory role with respect to the Remedial Investigation / Feasibility Study?

At what point does the Department have access to the documents and results of any studies conducted by the military? Upon final review by base personnel? Or as results are received by the base personnel?

When does the department exercise its right under section 121 of SARA to "comment" on these results and is there any requirement that the facility must respond to the comments? When? How must they respond?

At what point does data like monitoring well samples become of limited value to the department when assessing likely courses of remedial action?

Is the department a party to an Interagency Agreement with respect to any military facility in the State? If so, which ones?

Is there any corrective action authority if an IAG is not complied with?

How, to your knowledge, is an IAG to be enforced?

What, in your opinion, would be the best legal position for the State to be in; as a party to an IAG or as an outsider to any agreement?

FORT MONMOUTH

In your status report you indicated that a priority pollutant analysis was requested in September of 1986 to be conducted at the existing monitoring wells, stream sediments and surface waters and that EPA indicated that a report from the Army was due in March 2, 1987 detailing what action the Army would take.

Was the response of the Army as to whether they would conduct the sampling or was it to indicate what action they would take based on the results of the sampling?

If it was whether they would conduct the sampling at all: Why, in your opinion, would it take the Army 6 months just to decide whether they would do the testing?

If it is related to the actions the Army would take based on the results of the sampling: What actions has the Army indicated they would take?

EPA has indicated with respect to the five sites of radioactive contamination, 4 have been completely decontaminated, and that the last (Neutron Generator Facility) has been released by the NRC for unrestricted use and has been transferred to the U.S. Dept of the Interior for management as part of the Gateway National Park.

Are you satisfied that all of the radioactive sites at the facility have been cleaned up and that there is no radioactively contaminated sites in existence at the facility?

Will this facility be recommended for inclusion on the NPL? When?

NAVAL WEAPONS STATION EARLE Colts Neck

EPA indicated that 2 more rounds of sampling would be conducted under the Phase II Stage I Confirmation study in July of 1986 and is under review by the Navy -
How long do you expect it to take before you will be able to analyze the new data generated by the sampling?

You indicated in your status report that sampling would be conducted for levels of chlorobenzene would be re-done - Has it been scheduled? For when?

EPA indicated their willingness to sign an IAG similar to the Federal Facilities Agreement negotiated previously but never signed -
Has a date been set for the signing of that document and do you expect that the department will be a party to the agreement?

MILITARY OCEAN TERMINAL BAYONNE (MOTBY)

In your status report you indicate that a sampling plan is being reviewed by you and the EPA. Is this part of the Scope of Work that the EPA says it forwarded to you in December of '86?

EPA also indicated that you would be inspecting the facility in March of this year. Did you? What did you find?

EPA found certain violations in an inspection that their RCRA personnel conducted in June of 1986, and the facility was subsequently issued a Notice of Violation. Were you informed of this?

FAA TECHNICAL CENTER, Pomona

In your status report you indicate the discovery of 6 more sites of concern in the remedial investigation and 7 more site during a Focused Feasibility background investigation and that sampling will be conducted. The sampling data you submitted - is that the preliminary sampling you indicated needed to be done in the status report? If not, when will the sampling be conducted and by whom?

Is there anything in the sampling data that you did submit that alarms or concerns you? For instance, one of the certificates of analysis indicates that for pentachlorophenol no contaminents were detected above 50 miligrams per liter, is there any health based limit that might be lower than that?

Are the levels indicated in the sampling data similar to the levels for testing used under the A-280 water testing program?
Is the FAA Center a likely candidate for the NPL?

MCGUIRE AIR FORCE BASE Plumstead

What were the results of the round of sampling conducted in February and March of this year?

In your status report you indicate that the June 1986 report suggests that the radioactive contamination is confined to near surface soils, that monitoring wells were installed in December of 1986. What is the result of that sampling?

Has the sampling at the 6 wells at the accident site been conducted? If not why not?

Of what utility for the response to contamination is water quality sampling data that is over a year old?

You indicate that the Stage II, Phase II work was conducted without consideration of comments by DEP. What action do you believe we as a State can take to assure that the provisions of SARA are upheld?

Will Mcguire be recommended for inclusion on the NPL? When do you anticipate such inclusion?

FORT DIX LANDFILL Fort Dix

The sampling data and the report submitted by the department indicates the contamination of groundwater to the south and southwest of the landfill. What remedial action alternatives are you considering?

The report also indicates that while organic contaminent migration was not indicated, monitoring wells do not exist in many areas of possible contaminent migration. Are there any plans to locate monitoring wells in those areas?

Do you have the results of the sampling carried out at 8 sites in October of 1986 and of the other sites carried out in February? What were the results?

Why is it that you seem to be getting so much timely cooperation at the Fort Dix facility as opposed to the Mcguire facility?

Will this site be evaluated for inclusion on the NPL? Do you think it will be included?

PICATINNY ARSENAL Dover

In 1983 the Army detected 12,000 parts per billion of TCE in well 9A and both vertical and horizontal movement at monitoring wells near building 65, which they suggested was due to the potable wells drawing the contamination away from the site. What assurances do you have that continued use of potable water from groundwater sources will not ultimately lead to off-site migration and contamination of other potable water wells?

You indicate that the Army closed down a number of lagoons without DEP approval.

Are they contaminated? With what? What has been done to determine whether these lagoons should be closed properly?

When do you anticipate to conduct the sampling and analysis of residential wells in the area off Route 15?

Is Picatinny being recommended for inclusion on the NPL?

Has it been ranked yet? If so what is the ranking?

NAVAL AIR PROPULSION CENTER Trenton

Is there anticipated groundwater monitoring to be conduct at the facility? When?

Do you anticipate that this facility will be included on the NPL?

NAVAL AIR ENGINEERING CENTER Lakehurst

The department indicated that the three landfills on the base involved filling of wetlands.

Did the landfills which filled wetlands require a 404 permit? Were the landfills permitted under section 404 of the Clean Water Act?

EPA has indicated that the Navy has stated that the sampling data aquired for the confirmation study are not adequate to evaluate the 44 sites, a second round of sampling will have to be conducted.

When are the new samples going to be conducted? When do you expect to receive the results?

Is this site on the NPL?

USATHAMA SAMPLING RESULTS

27 – 29 Oct 1986

December 1986 Fort Dix Task Force Meeting

16 Dec 1986

FORT DIX ANALYSIS

Sites Sampled

POL Area
DIO Maintenance Area
Paint Shop
Fire Training Area
Magazine 1 Area
Transportation Motor Pool
363rd Motor Pool
Pathological Landfill

Parameters Analyzed

Metals — Sb, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Tl, and Zn
Volatile Organics
Base/Neutral Extractables*
Acid Extractables*

* Analysis not yet available

RESULTS ABOVE CRITERIA

Magazine 1 Area

PARAMETER	CRITERIA	MAG–1*	MAG–2	MAG–3	MAG–4
TCE	5 ppb	<1.9 ppb	<1.9 ppb	<1.9 ppb	2600 ppb

Pathological Landfill

PARAMETER	CRITERIA	PLF31*	PLF32	PLF33
Cd	10 ppb	43.7 ppb	20.9 ppb	12.6 ppb
Cr	50 ppb	219 ppb	15.2 ppb	50.3 ppb

* Upgradient Well

1 of 1

[illegible] Results [illegible] Fort Dix

SITE	WELL	UP/DW	Parameter	Conc. (ppb)	CRITERIA Fed.	CRITERIA NJ
MAG-1	MAG-04	DW	TCE	2600	5 [1]	0-3.1 [7]
POL Area	POL-06	DW	Naphthalene	8	28 ng/l [7]	—
	POL-06	DW	Fluorene	2	28 ng/l [7]	—
Fire Tanks	FTT-13	DW	Chloroform	2	1.9 [1]	—
	FTT-14	DW	Chloroform	2	1.9 [1]	—
Golf Course	GLF-16	DW	Benzene	400	5 [1]	0-.68 [2]
Paint Shop	PTS-19	DW	Cd	13	10 [4]	10 [3]
Trans. Motor Pool	TMP-22	DW	Chloroform	8	1.9 [1]	—
Range Landfill	RLF-27	UP	Ni	290	13.4 [5]	—
	RLF 28	DW	Ni	67	13.4 [5]	—
	RLF-30	DW	Ni	6600	13.4 [5]	
	RLF-30	DW	Cr	1350	50 [4]	50 [3]
Path. Landfill	PLF-31	UP	Cd	44	10 [4]	10 [3]
	PLF-31	UP	Cr	219	50 [4]	50 [3]
	PLF-32	DW	Cd	21	10 [4]	10 [3]
	PLF-33	DW	Cd	13	10 [4]	10 [4]
	PLF-33	DW	Cr	50	50 [4]	50 [4]
PDO Landfill	PDO-34	DW	Ni	75	13.4 [5]	—
EPIC-8 Landfill	EP8-36	DW	Ni	67	13.4 [5]	

X181

SITE	WELL	UP/DW	Parameter	Conc. ppb	Criteria Fed.	Criteria NJ
)ld Landfill	AN9-39	DW	Ni	75 + 80	13.4 [5]	—
ld Excavation	AN2-40	UP	Ni	70	13.4 [5]	—
IRDC Site	Soil-4	Surrounding spill site	Total Hydrocarbons	431 ppm	—	100 ppm [6]
	Soil-5		"	436 "	—	"
	Soil-6		"	134 "	—	"
	Soil-7		"	129 "	—	"

Cited Criteria

Federal Regulations

1. Proposed MCL's
4. Primary Drinking H_2O Std's
5. Human Health Criteria
7. Ambient Water Quality Criteria For PAH's

NJ Standards

2. Interim Action Levels (Level 1)
3. NJ Bureau of Potable Water
6. NJ Soil Clean-up Std's

FACT SHEET

8 MAY 1987

GSA RARITAN ARSENAL

The GSA, Raritan Depot site, located south of Woodbridge Avenue in Edison, New Jersey consists of 3,300 acres of marsh and upland used by the U.S. Army from 1917 through 1964 for ammunition storage, processing and disposal. The site also included a demolition ground near its southern border.

The U.S. Army conducted an extensive decontamination program (surface cleaning) in 1963 of all buildings which could have been contaminated with explosive material.

On June 20, 1985, NUS conducted a site inspection and sampling of surface water, sediment and soil and analyzed for Hazardous Substance List compounds. Surface water contained trans - 1, 2 - dichloroethane, vinyl chloride, trichloroethane and methylene chloride. Sediment samples contained methylene chloride, 2 - hexanone, acetone, trichloroethane, 4 - methyl - 2 pentanone, styrene and xylene. Soil samples contained methylene chloride, acetone, 4 - methyl - 2 - pentanone, styrene, 4 - 4 - DDE, 4 - 4 - DDT, Al, Ar, Ba, Cd, Ch, Cu, Fe, Pb, Mg, Mn, and Zn.

On April 28 through May 2, 1986, USEPA conducted a radiological survey of the GSA Raritan Depot. The purpose of the survey was to confirm previous measurements of elevated concentrations of radon - 222 and radon decay products. The results indicated that direct gamma radiation measurements in some buildings are above normal background.

NJDEP's review comments of the radiological survey were submitted to USEPA on October 3, 1986. To date, no response has been received.

On September 17, 1986, the Department of the Army submitted a draft Scope of Work to investigate chemical and ordinance contamination at the GSA Raritan site. The Scope of Work included sampling of surface and deep soils, surface water and ground water. NJDEP reviewed the Scope and issued comments to the Army on November 19, 1986. To date, no response has been received.

Neutron Generator Facility
Ft. Hancock, NJ (Sandy Hook)

1. The neutron generator facility was operated in Bldg 539 at Ft. Hancock, NJ. This facility is governed by Nuclear Regulatory Commission (NRC) License No. 29-01022-06. Operation of the neutron generator facility began in 1964 in a World War I coastal defense bunker. Use of the existing heavily walled bunker provided the shielding needed for the experiments.

2. Much of the work done in the facility was classified top priority national defense interests. One unclassified aspect of the work dealt with the determination of vulnerability of Army and Air Force equipment to neutrons. Experiments conducted involved the use of radioactive tritium targets. These targets were bombarded with neutrons from the neutron generator. The room housing the generator was equipped with a ventilation system which exhausted a volume of air equal to the volume of the room out the stack (23 feet high) every two minutes. According to the operation manual for the neutron generator, the maximum amount of tritium released during a target change was 0.0018 millicuries (mCi). The maximum amount of tritium released during an evacuation of the entire accelerator with the ion pump off was 0.035 mCi. Assuming that 0.035 mCi is released, the tritium would be removed from the room by the ventilation system within minutes. The exposure to personnel in the generator room would be significantly below federal standards.

3. In 1975 the U.S. Army transferred custody of the majority of Ft. Hancock to the National Park Service as the Sandy Hook Unit of Gateways National Park. The Army retained custody of Bldg. 539 through a lease with the National Park Service.

4. The last experiment was conducted in the facility in January 1979. The facility was closed down because of a lack of spare parts for the high voltage equipment. The generator remained in the facility until 1982.

5. In January 1985 the NRC conducted an inspection of the former U.S. Army Electronics Research and Development Command (ERADCOM) to include the 29-01022-06 license. The only recommendation they had was to submit a formal copy of the closeout survey to them once decontamination was completed. In June 1985 the U.S. Army Environmental Hygiene Agency (USAEHA) performed a comprehensive ERADCOM inspection. As a result of this inspection there were no recommendations for the facility.

6. Following the disestablishment of ERADCOM on 1 October 1985, CECOM assumed responsibility for the facility. Plans were made to complete the decontamination effort. In October 1985 a comprehensive study was done of the facility. On 12-13 December, the south wall and the contaminated ventilation ducts in it were removed. The ducts and parts of the wall found to be contaminated were placed in radiation waste barrels and shipped to a licensed nuclear waste burial site. Personnel from USAEHA accompanied the team on 12 December and conducted a survey of the facility. Results indicated that there were two localized areas which still slightly exceeded the NRC limit for unrestricted building use.

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY

REPLY TO ATTENTION OF

September 25, 1986

Safety Office

Ms. Jeanette Eng
New Jersey State Department of
Environmental Protection
Bureau of Radiation Protection
CN 411
Trenton, NJ 08625

Dear Ms. Eng:

On September 9, 1986, you and Mr. William Csaszar performed a close-out radiation survey of the Fort Hancock Neutron Generator Facility located at Sandy Hook, NJ. As you requested during this evaluation, provided at the enclosure is historical information relating to the decommissioned facility.

Pursuant to your close-out survey, request this command be provided with results of your evaluation of the decommissioned facility. The results are to be provided to:

Commander, U.S. Army Communications-Electronics Command, ATTN: AMSEL-SF-MR, Fort Monmouth, NJ 07703-5000.

If further information is needed in this regrad, please contact Mr. Joseph M. Santarsiero or the undersigned at (201) 544-4427.

Sincerely,

STEVEN A. HORNE
Chief, Safety Office

Enclosure

135X

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY

REPLY TO
ATTENTION OF

March 4, 1987

CECOM Safety Office

SUBJECT: Sandy Hook Facility

Mr. Robert Hargrove
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, New York 10270

Reference is made to the telephone conversation of March 2, 1987 between CPT Mark Zarick, this office, and yourself, regarding the decommissioned Neutron Generator Facility at Sandy Hook, New Jersey.

As requested, the following information is provided for your review/files:

a. The U.S. Nuclear Regulatory Commission letter of November 20, 1986 releasing the facility for unrestricted use (enclosure 1).

b. USACECOM letter of January 9, 1987 notifying the U.S. Army Engineering District of New York of this command's intention to terminate the lease on the facility (enclosure 2).

c. The letter of February 2, 1987 from the U.S. Army Engineering District of New York acknowledging that the U.S. Department of the Interior has taken possession of the facility (enclosure 3).

If further information is needed in this regard, please contact Mr. Joseph M. Santarsiero or the undersigned at (201) 544-4427.

Sincerely,

Barry Soller
for Steven A. Horne
Chief, Safety Office

Enclosures

CF:

Department of Environmental Protection, Bureau of Radiation Protection, CN 411, Trenton, NJ 08625

136X

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

NOV 20 1986

Docket No. 030-05248 License No. 29-01022-06

Department of the Army
Electronic Research and Development Command
ATTN: DRDEL-SS
Fort Monmouth, New Jersey 07703

Gentlemen:

Subject Inspection No. 030-05248/86-01

This refers to the closeout inspection conducted by Mr. Thomas K. Thompson and Ms. Judith Joustra of this office on September 9, 1986 and the survey by Ms. Joustra on October 23, 1986 at your Sandy Hook, New Jersey facility, of activities authorized by NRC License No. 29-01022-06 and to the discussions of our findings held by Mr. Thompson with Joseph Santarsiero at the conclusion of the inspection.

The inspection was limited to independent measurements. Our inspector examined those activities conducted under your license relating to the subject covered in your letters to Nuclear Regulatory Commission, Region I, dated June 11, 1986 and October 8, 1986. With regard to this matter, during the inspection on September 9, 1986, the inspector made independent measurements of radiation levels and took wipe samples of floors, walls, and ceilings in the laboratories of your Sandy Hook, New Jersey facility. The inspectors also took a soil sample in the manhole in front of your facility. The wipe samples and soil sample were analyzed in our Regional Office laboratory. Our initial survey indicated a disagreement with regards to certain wipe test results in your June 11, 1986 letter. The soil samples were in agreement with your results. Our re-survey on October 23, 1986 of the areas referenced in your letter of October 8, 1986 are now in agreement. We will use this information to amend your license. These results confirm that this facility meets NRC criteria for unrestricted use.

Within the scope of this inspection, no violations were observed.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the Public Document Room.

137X

No reply to this letter is required. Your cooperation with us in this matter is appreciated.

Sincerely,

John E. Glenn

John E. Glenn, Ph.D, Chief
Nuclear Materials Safety Section B
Division of Radiation Safety
and Safeguards

cc:
Public Document Room (PDR)
Nuclear Safety Information Center (NSIC)
State of New Jersey

Commander
U.S. Army Material Command
ATTN: AMCSF-P
5001 Eisenhower Avenue
Alexandria, Virginia 22333

Commander
USACECOM
ATTN: AMSEL-SF-MR
Fort Monmouth, New Jersey 07703

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY

REPLY TO
ATTENTION OF

09 JAN 1987

SELHI-EH-E

SUBJECT: Expiration of Lease No. DACA51-9-75-375, Building No. 539-S-180

Commander and District Engineer
US Army Engineer District, New York
ATTN: NANRE-EE
26 Federal Plaza
New York, New York 10278-0090

1. Reference:

a. FONECON between Mr. Ernest Tomaini, this office, and Mr. Art Sokoloof and Mr. Murry Leeds, NANRE-A, 31 December 86, SAB.

b. Letter, SELHI-EH-E, 31 December 86, SAB.

c. Chronology of Events: Sandy Hook Facility (Encl 1).

d. Letter, United States, Nuclear Regulatory Commission, 20 November 86, Subject: License No. 29-01022-06 (Encl 2).

e. FONECON between Mr. Ernest Tomaini, this office, and Mr. Art Sokoloof, NANRE-EE, 6 January 87, SAB.

2. As discussed in Reference 1a and 1e, we are providing the additional data as requested for the return of Building No. 539-S-180 to the U.S. Department of the Interior, National Park Service.

3. As indicated in Reference 1c, subject site has not been utilized since January 1979 and no further use of the facility is required. Reference 1d (Encl 2) indicates that the facility has met NRC criteria for release for unrestricted use.

4. Fort Monmouth requests that the above subject lease be terminated. Action to be completed NLT 26 January 87.

139X

SELHI-EH-E
SUBJECT: Expiration of Lease No. DACA51-9-75-375, Building No. 539-S-180

5. Point of contact for this command is Mr. Ernest A. Tomaini, AUTOVON 992-1474.

6. "CECOM - Providing Soldiers the Decisive Edge."

FOR THE COMMANDER:

2 Encls

WILLIAM N. MACKINNON
LTC, EN
Facilities Engineer

CF:
AMSEL-SF-RIR
Cdr, AMC, ATTN: AMCSF-P
State of New Jersey, Department of Environmental Protection, Bureau of Radiation Protection
US Nuclear Regulatory Commission, Region I
US Department of Environmental Protection, Region II
US Department of Interior, National Parks Service

1402

CHRONOLOGY OF EVENTS: SANDY HOOK FACILITY

DATE	COMMENTS
	Neutron Generator Facility (NGF) installed at Fort Hancock in 1964.
	Ft. Hancock transferred to the National Park Service in 1975. NGF is retained by the Army.
01/05/79	Last experiment is conducted at the NGF.
05/11/79	NRC physical site inspection conducted.
03/14/82	USAEHA surveys facility and identifies contaminated areas.
08/03/82	Neutron Generator and associated ancillary equipment removed. Contaminated equipment disposed of as radioactive waste.
09/05/84	Stack removed from exterior of facility and disposed of as radioactive waste.
01/22/85	NRC inspection of license. Finding: Submit report when final decontamination is completed
12/12/85	South interior wall and ventillation ducts removed and disposed of as radioactive waste.
12/31/85	USAEHA final closeout survey of the facility.
04/09/86	USAEHA provides report which indicates that the site "...has been decontaminated to the lowest practical levels and meets U.S. Nuclear Regulatory Commission standards for abandonment or release for unrestricted use."
09/09/86	NRC performs closeout survey of the facility.
10/08/86	Amendment request provided to the NRC to approve the site for release to unrestritced use and delete the use of the site/facilility from the license.
11/20/86	The NRC indicates that the NGF meets NRC criteria for unrestricted use and provides an amendment to the issued license.

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
26 FEDERAL PLAZA
NEW YORK, N. Y. 10278-0090

REPLY TO
ATTENTION OF:

2 FEB 1987

NANRE-AA

Tel. 264-0140

SUBJECT: Expiration of Permit No. DACA51-9-75-375, Building No. 539-S-180

Commander
Headquarters US Army Communications-Electronic Command
Division of Engineering and Housing
Fort Monmouth, New Jersey 07703

1. In reply to your letter of 9 January 1987; the subject permit expired by its terms.

2. Mr. Arthur Sokolow of this office had FONECON with Mr. William R. Shields, Assistant Superintendent, Gateway National Recreation Area, Sandy Hook. Mr. Shields indicate that your Command had removed the locks from subject building and he was taking possession for the U.S. Department of the Interior, National Park Service.

FOR THE COMMANDER:

DAVID P. BUCHANAN II
CPT, CE
Acting Chief, Real Estate Division

142X

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FACT SHEET

MAY 04 1987

FORT MONMOUTH SITE

Background

The Fort Monmouth Site is an Army installation, consisting of three areas, the Main Post (Fort Monmouth), and two subposts, the Charles Wood Area (CWA) and the Evans Area, all located in Monmouth County. The Main Post is bounded by the boroughs of Eatontown, Oceanport, Little Silver and Shrewsbury. CWA is located approximately 4 to 5 miles due west of the Main Post. The Evans Area is approximately 12 miles south of the Main Post. All three installations are located within the Atlantic Coastal Plain, which consists of marine and continental sediments (composed of clay, sand and clay with minor amounts of gravel). From the 1950s to the 1970s a wide variety of industrial type operations for research and development have been conducted at the three sites. These operations included metal plating (involving gold, silver, platinum, chromium, nickel, cadmium, copper and zinc), motor vehicle maintenance (including body repair and painting), a printing plant, woodworking, circuit board etching, painting, glassblowing, and the use of electronics, plastics, batteries, crystals, photochemicals, and radioactive materials.

Status

An Installation Assessment Report (IAR) was prepared by the Army in May 1980. This IAR was limited in scope and identified the potential areas of contamination. In order to confirm and/or identify the problems at the site, it was requested by the New Jersey Department of Environmental Protection (NJDEP) in September 1986 that a priority pollutant analysis for the existing New Jersey Pollutant Discharge Elimination System (NJPDES) monitoring wells, stream sediments and surface water be performed. In April 1987, NJDEP reviewed the updated Phase I IAR, which assesses the potential for hazardous substances to migrate off the Fort Monmouth Main Post and CWA and Evans Area Subposts. The Phase I Report does not confirm the existence or absence of contamination due to a lack of sampling data. The following concerns exist at the three locations:

- Main Post

  - Existence of 5 landfills, including an asbestos waste landfill, which were closed before existing regulations were in effect.

  - Possible existence of a sixth landfill, that is not included in the NJPDES Permit, and possible need to modify the existing permit.

  - The need to confirm whether or not hazardous substances are leaving the site.

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
John J. Trela, Ph.D., Acting Director
401 East State St.
CN 028
Trenton, N.J. 08625
609 - 633 - 1408

16 APR 1987

Mr. Robert Hargrove, Federal Facilities Coordinator
Environmental Impacts Branch
United States Environmental Protection Agency
Region II - 26 Federal Plaza
New York, New York 10278

Dear Mr. Hargrove:

RE: Fort Monmouth, Monmouth County
Updated Phase I Initial Installation Assessment

A review of the updated Phase I - Initial Installation Assessment Report dated November 1986 prepared by Environmental Science and Engineering, Inc. has been made by this office. The Installation Assessment Report (IAR) of May 1980 and this updated Phase I Report assess the potential for hazardous and toxic substances to migrate off the Fort Monmouth Main Post and subposts-Charles Wood Area and Evans Area.

The Phase I Report does not confirm the existence/absence of contamination. The following concerns must be addressed:

1) Main Post Area
   a. The IAR (pg. 39) discusses an asbestos waste landfill behind Building 1220. The asbestos was being stored there pending disposal to a state approved landfill. The disposition of this asbestos landfill has not been addressed.

   b. The IAR identifies a sixth landfill that is not included in the NJPDES permit. Modification of the NJPDES permit may be required to include additional sampling locations and parameters pending site investigation to confirm the existence of this landfill.

   c. Previous ground water investigations at the Main Post were limited in scope. To confirm that there are no hazardous pollutants leaving the site due to the disposal of industrial wastes, a round of priority pollutant analysis of the existing monitoring wells, stream sediments and surface water should be performed.

2) Charles Wood Area (CWA)

a. The updated Phase I Report indicates that the sludge dump was used for storage of treated sludge. The sludge was utilized at the CWA as a soil conditioner/fertilizer for the on-site golf course. Due to the discharging of metal plating waste into the sewer system, the sludge may have been contaminated. Soil and ground water samples should be taken in the area of the sludge dump and analyzed for PP + 40.

b. The IAR identified an area utilized for the disposal of administrative type waste and wood in the southwest corner of the CWA. The type of waste buried at this site and whether there are any leachate problems from this area should be addressed.

c. The IAR described the use of on-site underground tanks for the storage of radioactive liquid waste. The disposition of these tanks must be addressed.

3) Evans Area (EA)

a. The IAR identified two suspected landfill areas. An area west of the sewage treatment plant and an area along the north side of Laurel Gully Brook. The identification of the type of material disposed and the required corrective action, if required, must be addressed.

b. The IAR described the discharge of plating waste, grease and oil into storm sewers and floor drains. Information on corrective measures taken must be submitted.

4) A few aspects of operational and disposal practices at Fort Monmouth may warrant additional or more detailed record and operational practice searches, site inspections, or field investigations. Areas of concern include:

a. Soil and ground water contamination of diesel and gasoline fuel leaks from underground and aboveground storage tanks,

b. Pesticide, herbicide, rodenticide, and PCB contamination from poor handling practices or spills in the storage areas in Buildings 167 and T-65 (Main Post) and T-2044 (Charles Wood Area).

Please let me know when the meeting with Fort Monmouth personnel will be held. Should you have any questions on the above comments, please contact me at (609) 633-0701.

Sincerely,

Roman S. Luzecky
Case Manager

c. Karen Jentis, Chief, BCM
David Barskey, Technical Coordinator, BEERA
David Kaplan, Geologist, GWQCS

145X

MAY [redacted]

Co[redacted]ett
Deputy Installation Commander
Department of the Army
U.S. Army Communications-Electronics
Command and Fort Monmouth
Fort Monmouth, New Jersey 07703

ATTN: Directorate for Facilities
Engineering and Housing

Dear Colonel Hackett:

Enclosed are comments from the U.S. Environmental Protection Agency [redacted]
and the New Jersey Department of Environmental Protection regarding [redacted]
of the Initial Installation Assessment of Fort Monmouth. The Army s[redacted]
this document to EPA on February 20, 1987. If you have any questions [redacted]
EPA's comments, please contact Jill Hacker of my staff at (212) 264-5[redacted]

Sincerely yours,

Robert W. Marrone
Federal Facilities Coordinator
Environmental Impacts Branch

Enclosures

cc: R. Luzecky, NJDEP

146X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

Doug -
Have Jill
combine this
w/ NJDEP comments
in letter to Ft.
ASAP

DATE: APR 23 1987

SUBJECT: Port Monmouth Updated Phase I Comments

FROM: Carole Petersen, Chief
Site Investigation Section (2ERRD-PS)

TO: Robert Hargrove
Federal Facilities Coordinator (2PM-EI)

Attached are our review comments pertaining to Fort Monmouth's updated Phase I report.

Please contact Helen Shannon of my staff x4706 as to the dates of consideration for the meeting with Fort Monmouth and NJDEP personnel. We would also appreciate your forwarding us NJDEP's Phase I comments as soon as you receive them.

Attachment

cc: Helen Shannon

Comments Pertaining to Ft. Monmouth's Updated Phase I IAS Report

1. With regard to the sludge drying beds:

   a) p 3.3 - It was noted: "Sludge and supernatant liquid was removed from the EA STP's and the plant was sanitized and sterilized". What is meant by sanitized and sterilized?

   b) p 3.2, 3.3 - All sites with sludge drying beds at Ft. Monmouth's Main Post, CWA and EA were potential sources of contamination. Despite the fact that they are closed now and "the quantities of sludges and supernatants were removed", these areas should be tested for priority pollutants. (Groundwater and soil samples should be taken and analyzed for priority pollutants.) The sludge which accumulated over many years may be a major source of high content levels of chromium, lead, and mercury.

2. General comments:

   a) The geology of the Main Post, CWA and EA is conducive to migration via surface and subsurface routes. Since no data are available on subsurface migration and limited data are available on surface migration, a groundwater monitoring program would help to determine if the contaminants are migrating and in what direction they are migrating.

Melinda/Roman: Please call to say [illegible] received [illegible] Fri. (4/3) [illegible]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10278

MAR 26 1987

Ms. Karen Jentis, Chief
Bureau of Case Management
New Jersey Department of
Environmental Protection
P.O. Box CN-028
Trenton, New Jersey 08625

Dear Ms. Jentis:

Enclosed for your review and comment is a copy of the updated Phase 1 IRP study for Fort Monmouth, New Jersey. The facility has requested comments on the report in early april. Accordingly, I would greatly appreciate receiving any comments you may have on the report by April 6, 1987. At that time, I plan to arrange for a meeting with Fort Monmouth personnel, and NJDEP personnel to discuss our comments on the report and the need for additional work (i.e., Phase 2 study) at the Fort.

In addition to the Phase I report, I have also enclosed for your information a copy of the documentation submitted by Fort Monmouth concerning the decommissioned neutron generator facility that the Fort operated at Sandy Hook, New Jersey.

If you have any questions concerning this material, please contact me at (212) 264-1840.

Sincerely yours,

Robert W. Hargrove

Robert W. Hargrove
Federal Facilities Coordinator
Environmental Impacts Branch

Enclosures

149X

AMXTH-IR-A-171(U)

UPDATE OF THE INITIAL INSTALLATION ASSESSMENT OF FORT MONMOUTH AND SUBINSTALLATIONS: CHARLES WOOD AREA AND EVANS AREA

J.D. Bonds, K.J. Tribbey, and K.A. Civitarese

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
P.O. Box ESE
Gainesville, FL 32602

November 1986.

REVISED DRAFT

Prepared for:

COMMANDER
U.S. Army Communications-Electronics Command
Fort Monmouth, NJ 07703
and
U.S. ARMY TOXIC AND HAZARDOUS MATERIALS AGENCY
Aberdeen Proving Ground, MD 21010-5401

150X

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS None
2a. SECURITY CLASSIFICATION AUTHORITY N/A	3. DISTRIBUTION/AVAILABILITY OF REPORT Requests for this document must be referred to: Commander, Fort Monmouth.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) 171(U)	5. MONITORING ORGANIZATION REPORT NUMBER(S) AMXTH-IR-A-171(U)
6a. NAME OF PERFORMING ORGANIZATION Environmental Science and Engineering, Inc.	6b. OFFICE SYMBOL (If applicable) N/A
6c. ADDRESS (City, State, and ZIP Code) P.O. Box ESE Gainesville, FL 32602-3053	7a. NAME OF MONITORING ORGANIZATION U.S. Army Toxic and Hazardous Materials Agency (USATHAMA)
	7b. ADDRESS (City, State, and ZIP Code) Assessments Division Aberdeen Proving Ground, MD 21010-5401
8a. NAME OF FUNDING/SPONSORING ORGANIZATION USATHAMA	8b. OFFICE SYMBOL (If applicable) AMXTH-IR-A
8c. ADDRESS (City, State, and ZIP Code) Assessments Division Aberdeen Proving Ground, MD 21010-5401	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER DAAA15-85-D-0017, Task Order 0004
	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. N/A; PROJECT NO. N/A; TASK NO. N/A; WORK UNIT ACCESSION NO. N/A

11. TITLE (Include Security Classification)
Update of the Initial Installation Assessment of Fort Monmouth and Subinstallations: Charles Wood Area and Evans Area

12. PERSONAL AUTHOR(S)
J.D. Bonds, K.J. Tribbey, and K.A. Civitarese

13a. TYPE OF REPORT Final	13b. TIME COVERED FROM Aug. 1986 TO Nov. 1986	14. DATE OF REPORT (Year, Month, Day) 1986/Nov. 14	15. PAGE COUNT 39

16. SUPPLEMENTARY NOTATION
N/A

COSATI CODES		
FIELD	GROUP	SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
Fort Monmouth
Charles Wood Area
Evans Area
Contamination
Hazardous Waste
Initial Installation Assessment

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

An onsite assessment was conducted on 7 August 1986, to determine if any environmental/hazardous waste disposal conditions had changed since the Initial Installation Assessment (IIA) of Fort Monmouth and Subinstallations was completed in 1980 and if such changes, coupled with interim changes in regulations or mission, had altered the contaminant migration/hazard situation and would change the previous recommendation of not conducting a remedial investigation/feasibility study. Based on information obtained during the current assessment, the IIA was updated. It was recommended that the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) not conduct a remedial investigation/feasibility study.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL C Robert S. Metzger, II	22b. TELEPHONE (Include Area Code) 301/671-3921
	22c. OFFICE SYMBOL AMXTH-IR-A

SUMMARY

An onsite assessment was conducted on 7 August 1986, to determine if any environmental/hazardous waste disposal conditions had changed since the Initial Installation Assessment (IIA) of Fort Monmouth and Subinstallations was completed in 1980 and if such changes, coupled with the interim changes in environmental regulations or mission, had altered the contaminant migration/hazard situation and would change the previous recommendation of not conducting a remedial investigation/feasibility study.

Since the IIA, Fort Monmouth has performed studies to determine the location of landfills on the main installation and the subinstallations: Charles Wood Area and Evans Area. Ground water monitor wells were installed in 1984 around the landfill on the main post area. Results from ground water and surface water studies indicated the possibility of leachate migrating from the landfill, but not in concentrations which would adversely affect receiving waters. Fort Monmouth applied for and received a permit for the landfill from the State of New Jersey. The New Jersey Department of Environmental Protection is evaluating the surface ground water data from the landfill and will make a final determination of any threat to public health and safety.

Other changes since the IIA include:

1. The Sewage Treatment Plants (STP) on main post and Charles Wood Areas have been closed, cleaned, and demolished;
2. The STP at Evans Area has been closed, cleaned, and sanitized; and
3. Radiation contaminated soils/vegetation were removed from the Evans Area and the site was certified clean.

Information obtained during the current assessment was used to update the IIA.

Based on an assessment of available data, it was recommended that U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) not conduct a remedial investigation/feasibility study. It is recommended that Fort Monmouth continue with the surface and ground water sampling program established for the Main Post landfill area.

TABLE OF CONTENTS

TABLE OF CONTENTS
(Continued Page 2)

1JJX

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

BOD	Biochemical Oxygen Demand
CECOM	U.S. Army Communications-Electronics Command
CERCOM	U.S. Army Communications-Electronic Materiel Readiness Command
Co-60	A radioactive isotope of cobalt
COD	Chemical Oxygen Demand
CORADCOM	U.S. Army Communications Research and Development Command
CWA	Charles Wood Area
DARCOM	U.S. Army Materiel Development and Readiness Command [now U.S. Army Materiel Command (AMC)]
EA	Evans Area
ECOM	U.S. Army Electronics Command
EPA	U.S. Environmental Protection Agency
EPIC	Environmental Photographic Interpretation Center
ESE	Environmental Science and Engineering, Inc.
FIT	Field Investigation Team
ft	foot
gal	gallon
ha	hectare
IIA	Initial Installation Assessment
km	kilometer
NIPDWR	National Interim Primary Drinking Water Regulations
NJDEP	State of New Jersey Department of Environmental Protection
NJDER	New Jersey Department of Environmental Regulation
NJPDES	New Jersey Pollutant Discharge Elimination System
NRC	U.S. Nuclear Regulatory Commission
NSDWR	National Secondary Drinking Water Regulations
Po-210	A radioactive isotope of polonium
POL	Petroleum, Oils, and Lubricants
RCRA	Resource Conservation and Recovery Act
STP	Sewage Treatment Plant
USAEHA	U.S. Army Environmental Hygiene Agency
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
WWI	World War I
WWII	World War II

1.0 GENERAL

1.1 PURPOSE OF THE EVALUATION

An onsite records search [Initial Installation Assessment (IIA)] was conducted at the Fort Monmouth Complex [consisting of Main Post Area and subinstallations: Charles Wood Area (CWA) and Evans Area (EA), Monmouth County, NJ] in 1980 to assess past and current use of toxic and hazardous materials, as well as the potential for these substances to migrate off the installations.

An evaluation of the records search (IIA) report for the Fort Monmouth Complex was conducted in August 1986 to determine if any environmental/ hazardous waste disposal conditions had changed and if such changes, coupled with interim changes in environmental regulations or mission, had altered the contaminant migration/hazard situation and would change the previous non-survey [non remedial investigation/feasibility study (RI/FS)] recommendation.

All information concerning operations existing at the time of the original assessment was reviewed and incorporated into this report, along with new information made available to the team upon assignment of the update and by the installation at the time of the revisit.

1.2 AUTHORITY

U.S. Army Materiel Development and Readiness Command (DARCOM) Regulation 10-30, Mission and Major Functions of the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), 13 July 1984.

1.3 INTRODUCTION

1. In reviewing earlier published records search (IIA) reports (1976 to 1981), the USATHAMA Installation Restoration Division determined some installations would require additional

evaluations due to changes in environmental laws, changes in mission, and environmental problems discovered after the onsite visit.

2. Subsequent to the IIA published in May 1980, USATHAMA determined a report update would be required for the Fort Monmouth Complex.
3. Fort Monmouth was contacted to outline the scope of the evaluation, provide guidelines to installation personnel, and obtain advance information for review by the evaluation team.
4. Fort Monmouth personnel were briefed on the evaluation program on 7 August 1986, by LTC Robert Metzger, II, from USATHAMA and by Dr. John D. Bonds from Environmental Science and Engineering, Inc. (ESE), a USATHAMA contractor.
5. Various Government agencies were contacted for documents pertinent to the evaluation effort. Agencies contacted include:
   a. U.S. Army Environmental Hygiene Agency (USAEHA) (Aberdeen Proving Ground, MD); and
   b. U.S. Environmental Protection Agency (EPA), Environmental Photographic Interpretation Center (EPIC) (Vint Hill Farms Station, Warrenton, VA).
6. The onsite phase of the evaluation was conducted on 7 August 1986. The information presented in this report is current, as of the date of the evaluation. The following personnel from ESE, under Contract No. DAAA15-85-D-0017, Delivery Order No. 0004, were assigned to the evaluation team:
   - Dr. John Bonds, Team Leader;
   - Ms. Kathryn Tribbey, Document Coordinator; and
   - Ms. Kathleen Civitarese, Librarian.
7. In addition to the records review, Fort Monmouth employees were contacted to obtain information on various sites (see App. A). A ground tour of Fort Monmouth, CWA, and EA was made, and photographs were taken.
8. The installation update focused primarily on those areas identified as potential problems in the original assessment.

1.4 INSTALLATION HISTORY

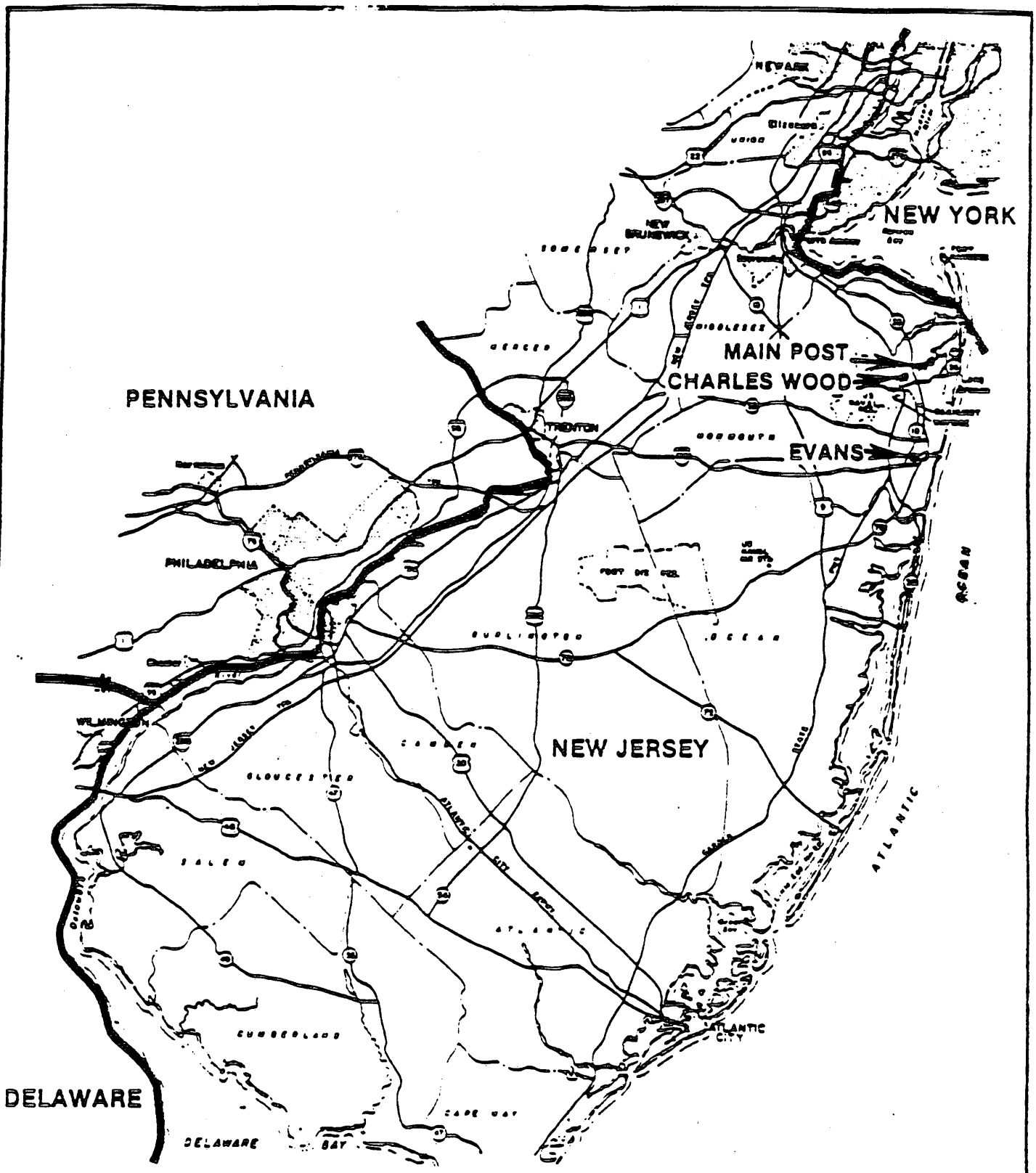
The Fort Monmouth Complex, including subinstallations CWA and EA, is located in Monmouth County, NJ (see Fig. 1-1). The Fort Monmouth Complex is located approximately 80 kilometers (km) from New York City and 113 km from Philadelphia, PA.

Fort Monmouth was established in May 1917 by the Adjutant General of the Army. The installation was originally designated the Signal Corps Camp at Little Silver. The original mission was to provide the World War I (WWI) army basic training in technical communications (radio operators, foreign codes, and language). In September 1917, the installation was renamed Camp Alfred M. Vail (Harland Bartholomew and Associates, Inc., 1984).

In 1925, Camp Vail received permanent status as an Army Post and was renamed Fort Monmouth. Construction of permanent buildings was initiated in 1927 and continued throughout the 1930's. During this era, the Signal Corps Laboratories developed aircraft locating and listening devices, developed thermal detection methods for aerial targets, demonstrated the use of high frequency radio, and developed the first radio detection and ranging (RADAR) unit.

Military buildups at Fort Monmouth began in 1939 and continued throughout World War II (WWII). During WWII, the installation trained and provided over 60,000 Signal Corps Specialists. During the Korean Conflict, Fort Monmouth scientists specialized in producing equipment designed after the end of WWII.

160 X



SOURCES: Harland Bartholomew & Associates, Inc., 1984.
ESE, 1986.

Figure 1-1
LOCATIONS OF FORT MONMOUTH MAIN POST AREA AND SUBINSTALLATIONS: CHARLES WOOD AREA AND EVANS AREA

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland

The U.S. Army (Army) was reorganized in 1962, and Fort Monmouth became headquarters for the U.S. Army Electronics Command (ECOM). The mission of ECOM was to develop electronic equipment for use in battlefields of the future.

In 1978 ECOM was disestablished and two new commands were formed: U.S. Army Communications-Electronics Materiel Readiness Command (CERCOM) and U.S. Army Communications Research and Development Command (CORADCOM). These commands were combined in 1981 to form the U.S. Army Communications-Electronics Command (CECOM). The mission of Fort Monmouth is to provide command, administrative, and logistical support for the Headquarters, CECOM.

The Charles Wood Area of the Fort Monmouth Complex is located west of the main post (see Fig. 1-2). The area, consisting of approximately 207 hectares (ha), contains a golf course, military housing, and buildings devoted to research and development.

The Evans Area is located approximately 16 km south of the main post (see Fig. 1-3). The area, consisting of approximately 87 ha, is devoted to research and development activities, including approximately 45 ha used as an open testing area. Approximately 37 ha of EA has been declared excess to Army needs.

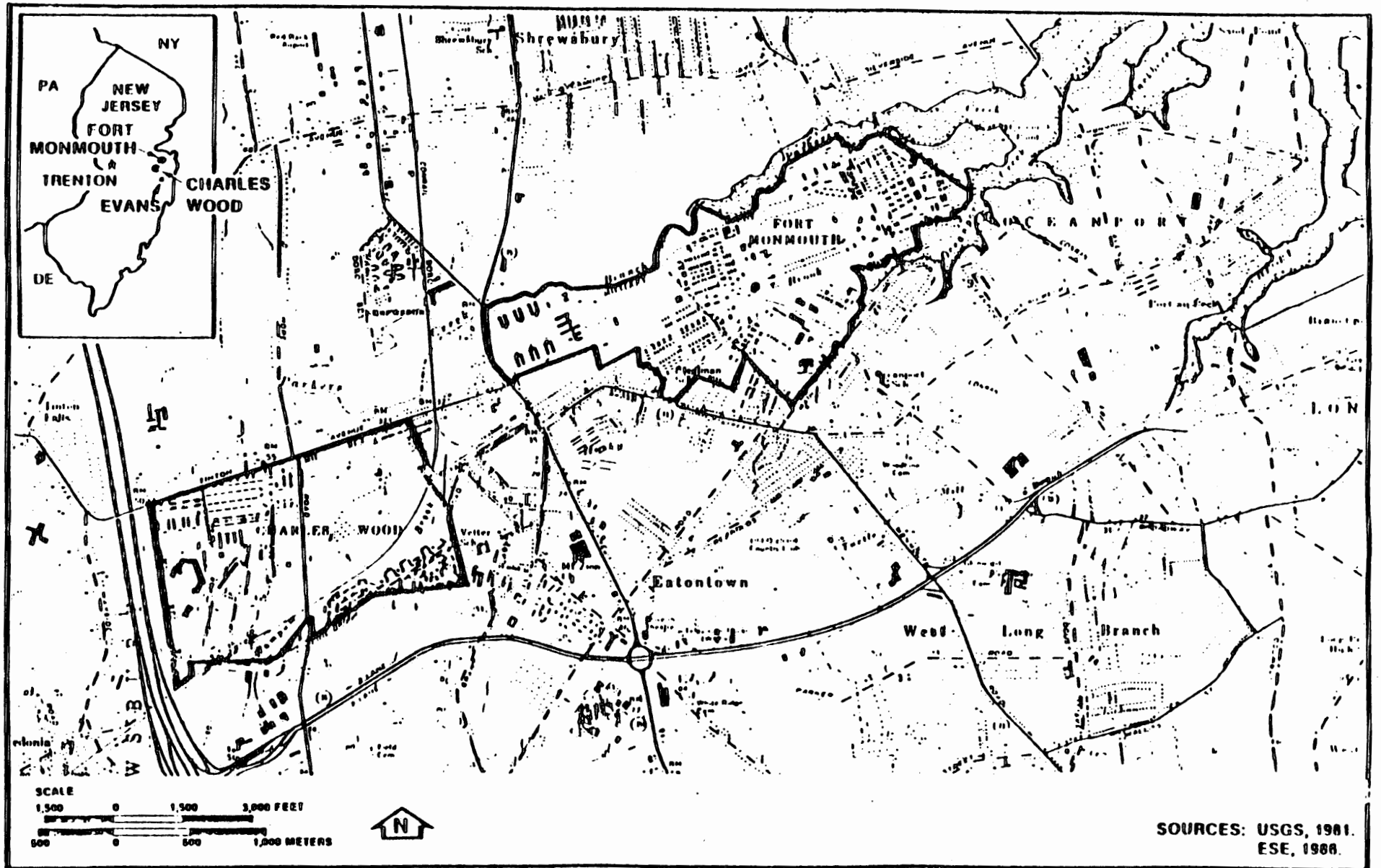
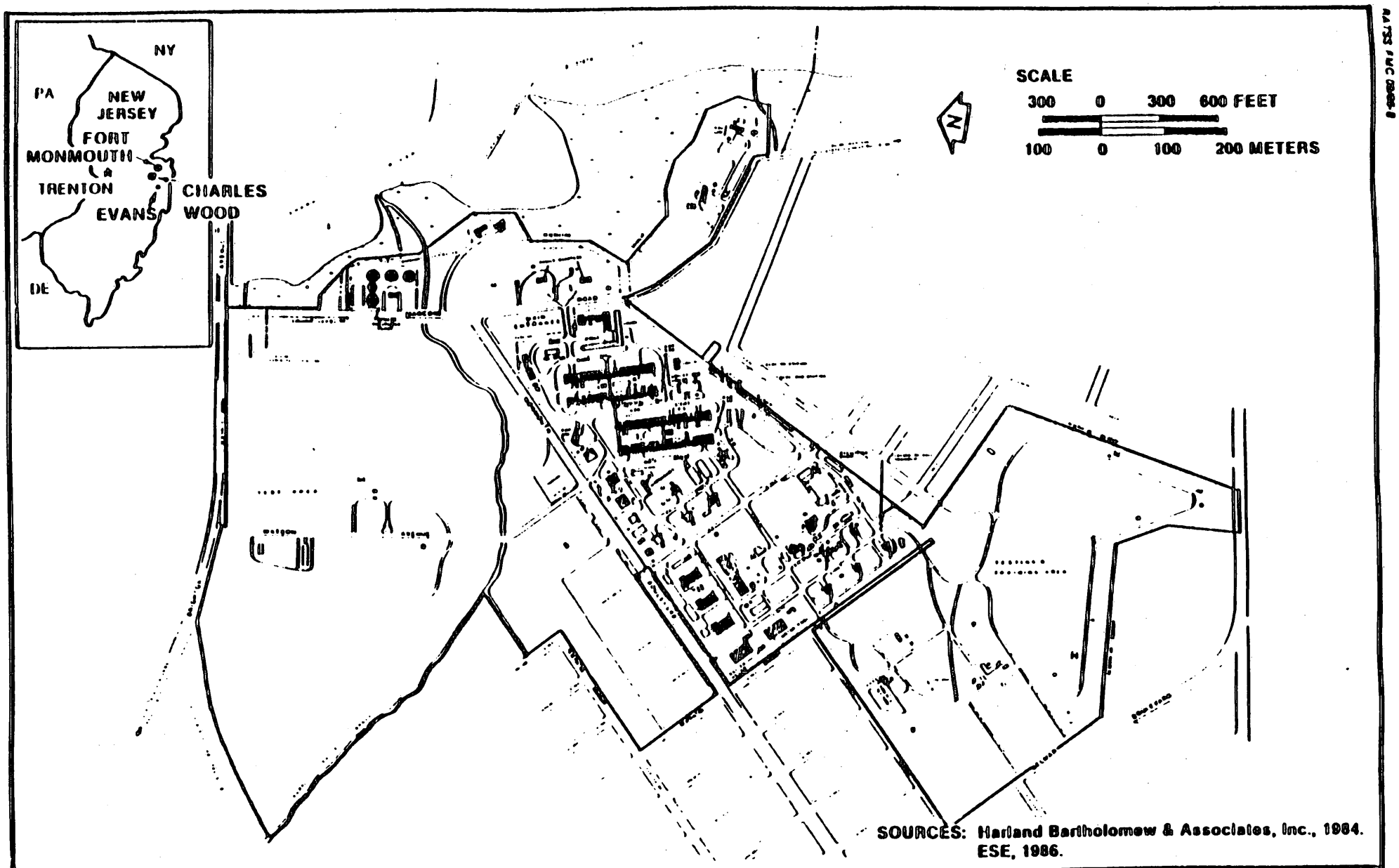


Figure 1-2
SITE MAP OF FORT MONMOUTH MAIN POST AREA AND THE CHARLES WOOD AREA

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland



SOURCES: Harland Bartholomew & Associates, Inc., 1984.
ESE, 1986.

Figure 1-3
SITE MAP OF THE EVANS AREA

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland

2.0 CONCLUSIONS, RECOMMENDATIONS, AND CORRECTIVE ACTIONS RESULTING FROM THE 1980 INSTALLATION ASSESSMENT OF FORT MONMOUTH AND SUBINSTALLATIONS: CHARLES WOOD AREA AND EVANS AREA

2.1 CONCLUSIONS [AS STATED IN THE IIA PUBLISHED BY USATHAMA IN 1980 (USATHAMA, 1980)]

1. The geology of Fort Monmouth, CWA, and EA is conducive to migration via surface and subsurface routes.
2. The landfills at the Main Post and the sludge drying beds at all three are potentially contaminated with heavy metals and a variety of organic wastes.*
3. USAEHA studies have concluded that the quality of surface water entering the CWA-Main Post is of poor quality, as determined by the lack of biological activity.

*Letter, File SELHI-EC, HQ, CERCOM, dated 22 July 1980, subject: Installation Assessment of Fort Monmouth Report No. 171, states: "The presence of heavy metals within the limits set by the Department of Environmental Protection, State of New Jersey, is not harmful for disposal at approved State landfill sites."

2.2 RECOMMENDATION [AS STATED IN THE IIA PUBLISHED BY USATHAMA IN 1980 (USATHAMA, 1980)]

1. That Fort Monmouth forward the findings of the Resource Conservation and Recovery Act (RCRA) study on the landfills to USATHAMA, upon completion of the study. The study results will be evaluated to determine the proponent for possible follow-on action.

2.3 CORRECTIVE ACTION TAKEN SINCE THE INITIAL ASSESSMENT

2.3.1 LANDFILL STUDIES

The 1980 IIA recommended that Fort Monmouth perform RCRA studies on installation landfills and report the results to USATHAMA (1980). The installation contracted William F. Cosulich Associates, P.C., to perform

a landfill study on Fort Monmouth (William F. Cosulich, 1980a). The study identified Areas A, B, C, D, and E as the major areas on Fort Monmouth where landfill activities had occurred (see Figure 2-1 for locations and dates of operation). At the time of the study, Fort Monmouth was in the process of closing out the operating landfill at Area E (see Fig. 2-1). Soil borings were made and monitor wells were installed. Surface water samples were collected from Parkers Creek, Lafetra Brook, and Mill Brook. Ground water samples were collected from the monitor wells. The surface water and ground water samples were analyzed for compliance with National Interim Primary Drinking Water Regulations (NIPDWR) and National Secondary Drinking Water Regulations (NSDWR). The results of these analyses indicated concentrations of some parameters exceeded NIPDWR and NSDWR concentrations (chromium, lead, selenium, and silver). Other parameters including biochemical oxygen demand (BOD) and chemical oxygen demand (COD) were detected at concentrations above background, indicating the possibility of landfill leachate. The study concluded that the parameters monitored were not found at sufficiently elevated concentrations to cause any degradation to the ground water or to surface waters. The contractor subsequently performed additional analyses on Monitor Well 2 (William F. Cosulich, 1980) in December 1980. The supplementary report indicated that surface waters were not being degradated beyond New Jersey Standards, but recommended that Fort Monmouth submit a landfill registration statement to the New Jersey Department of Environmental Regulation (NJDER).

In 1984, USAEHA performed a water quality engineering study at Fort Monmouth to determine if landfill leachate was forming and entering surface streams (USAEHA, 1984). Ten surface water sampling locations were selected for this study (see Fig. 2-1). The chemical results indicated the landfills are having minimal results on the streams flowing through Fort Monmouth. The study also recommended that the results be presented to NJDER in compliance with the New Jersey Pollutant Discharge Elimination System (NJPDES).

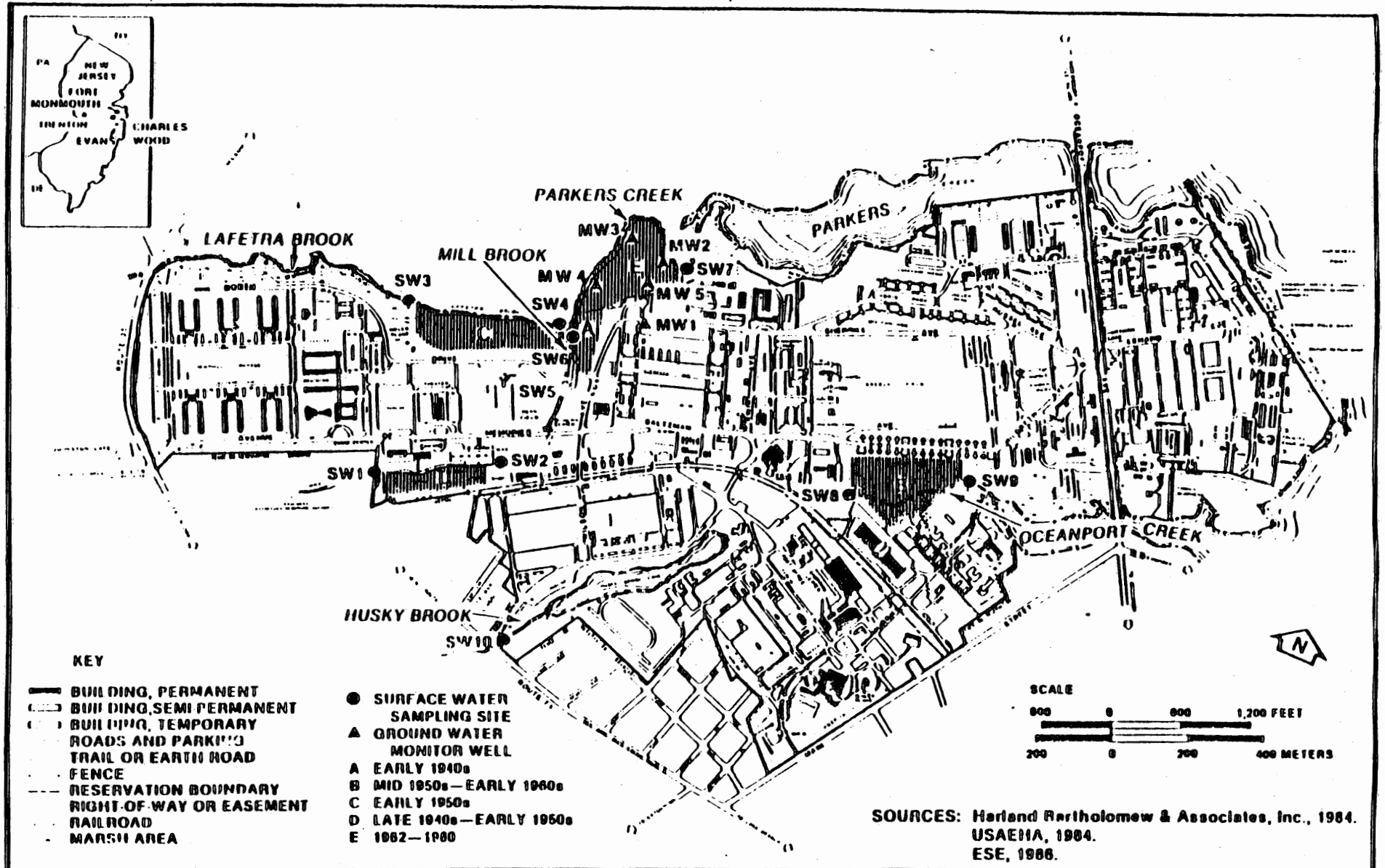


Figure 2-1
MONITOR WELLS AND SURFACE WATER SAMPLING LOCATIONS AT FORT MONMOUTH LANDFILLS

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland

2-3

167X

On 10 June 1985, Fort Monmouth was issued an NJPDES permit (NJ #0057274) for the landfill (see App. B). This permit requires Fort Monmouth to monitor the ground water at the sanitary landfill. It also requires that Fort Monmouth operate and maintain four ground water monitor wells according to New Jersey regulations. Several monitoring studies have been completed [USAEHA, 1985; State of New Jersey Department of Environmental Protection (NJDEP), 1985; USAEHA, 1986; and RCA, 1986], and the results indicate elevated levels of some parameters, but none which significantly impact the ground water quality. The New Jersey Department of Environmental Protection will evaluate the data and make a final determination on any threat to public health and safety.

3.0 ENVIRONMENTAL PROBLEMS IDENTIFIED AND OTHER SIGNIFICANT CHANGES SUBSEQUENT TO THE 1980 ASSESSMENT OF FORT MONMOUTH AND SUBINSTALLATIONS: CHARLES WOOD AREA AND EVANS AREA

3.1 ENVIRONMENTAL PROBLEMS IDENTIFIED

3.1.1 PUBLIC MISCONCEPTIONS

In December 1985, the Commander of CECOM was invited by the New Jersey State Legislature to provide information on Fort Monmouth operations to the Special Committee to Investigate Hazardous Waste Disposal at Military Installations. The committee requested information specific to the spills of radioactive substances and the status of sludge drying beds. The committee requested this information based on the public misconception that Fort Monmouth officials did not care about the effects of toxic materials and wastes on the citizens of New Jersey. Specifically, the committee requested information on: (1) leaks of radioactive materials at EA which reportedly had not been cleaned up, and (2) sludge drying beds on the Fort Monmouth Complex which represented potential health risks because they were unfenced and unposted.

Incomplete information on these aspects of the Fort Monmouth Complex operations had been provided to the committee by the Region II EPA Administrator and the EPA Contractors Field Investigation Team (FIT).

In mid January 1986, the commander of CECOM provided the committee with documentation (CECOM, 1986) indicating:

1. Fort Monmouth had performed Co-60 contamination studies at EA in May 1973, March 1975, and June 1976. The results of these studies indicated the presence of low-level radioactive contamination. As a corrective measure, Fort Monmouth removed a contaminated concrete pad along with the adjacent soil and vegetation. The contaminated items were disposed of in accordance with U.S. Nuclear Regulatory Commission (NRC) regulations. The area was subsequently surveyed by USAEHA with

appropriate radiation detection devices and found to be free from contamination. The area was declared available for unrestricted use.

2. A survey performed at EA in 1983 indicated Co-60 contamination of a 4- x 5-foot (ft) cinderblock platform. The platform was removed and disposed of in accordance with NRC regulations. The soil and vegetation in the immediate area were surveyed by USAEHA with appropriate radiation detection devices. In March 1985, some soil and vegetation were removed from the site and the area was released for unrestricted use.
3. A Po-210 leak occurred in a laboratory at EA in 1971. Fort Monmouth performed all necessary decontamination procedures, and the laboratory area is available for unrestricted use.
4. The Army operated a neutron generator at Fort Hancock, Sandy Hook, NJ, between 1964 and 1979. Beginning in March 1982, health physics personnel at Fort Monmouth, along with personnel for USAEHA, surveyed the site. Interior and exterior equipment and other items found to be contaminated have been disposed of in accordance with NRC regulations. The final survey is scheduled for 1986, and, upon completion and approval, the facility will be released for unrestricted use.
5. All sludges were removed from sewage treatment plants (STPs) at the Main Post Area, EA, and CWA in 1981. The STPs at the Main Post Area and CWA were demolished, and nothing remains which requires fencing. The STP at EA has been cleaned and sanitized and is fenced.

3.2 OTHER SIGNIFICANT CHANGES

3.2.1 SEWAGE TREATMENT PLANTS

At the time of the 1980 IIA, STPs at Fort Monmouth Main Area and CWA were inactive. Both of these areas were connected to the Northeast Monmouth County Regional Sewerage Authority Treatment Plants in September 1975. Since the IIA, Fort Monmouth has removed all remaining sludges from the

drying beds and sanitized the plants located at Fort Monmouth and CWA. The quantities of sludges and supernatants removed by a contractor (Modern Transportation Co. of Kearny, NJ), consisted of 881,936 gallons (gal) at Fort Monmouth Main Plant and 410,000 gal at CWA. In addition, the Fort Monmouth and CWA area STPs were demolished between 1981 and 1983.

The STP at EA was operational at the time of the IIA. The plant has subsequently been connected to the Wall Township Treatment Plant. In 1981, 225,400 gal of sludge and supernatant liquid was removed from the EA STP, and the plant was sanitized and sterilized. The plant was cleaned under a contract issued to Modern Transportation Co. of Kearny, NJ.

3.3 SITES IDENTIFIED FROM PHOTOGRAPHIC IMAGERY

The United States Environmental Protection Agency's (EPA's) Environmental Photographic Interpretation Center (EPIC), under contract to USATHAMA, prepared a report in which potential contamination sites on Fort Monmouth and Subinstallations were identified (EPIC, 1985). These sites were identified based on ground staining, ground scarring, open trenches, aboveground tanks, sludge beds, equipment storage areas, and other signatures which are readily recognizable to photographic imagery experts.

Potential sites identified at Fort Monmouth and Subinstallations are listed in Table 3-1. Descriptions of the sites are also given in Table 3-1. The locations of these sites are shown in Fig. 3-1. No new sites of concern were added to the report as a result of the EPIC study. The study proved very useful in confirming the existing areal extent of various potential sites identified in the IIA.

Table 3-1. Description of Potential Contaminant Sites Identified by Photographic Imagery

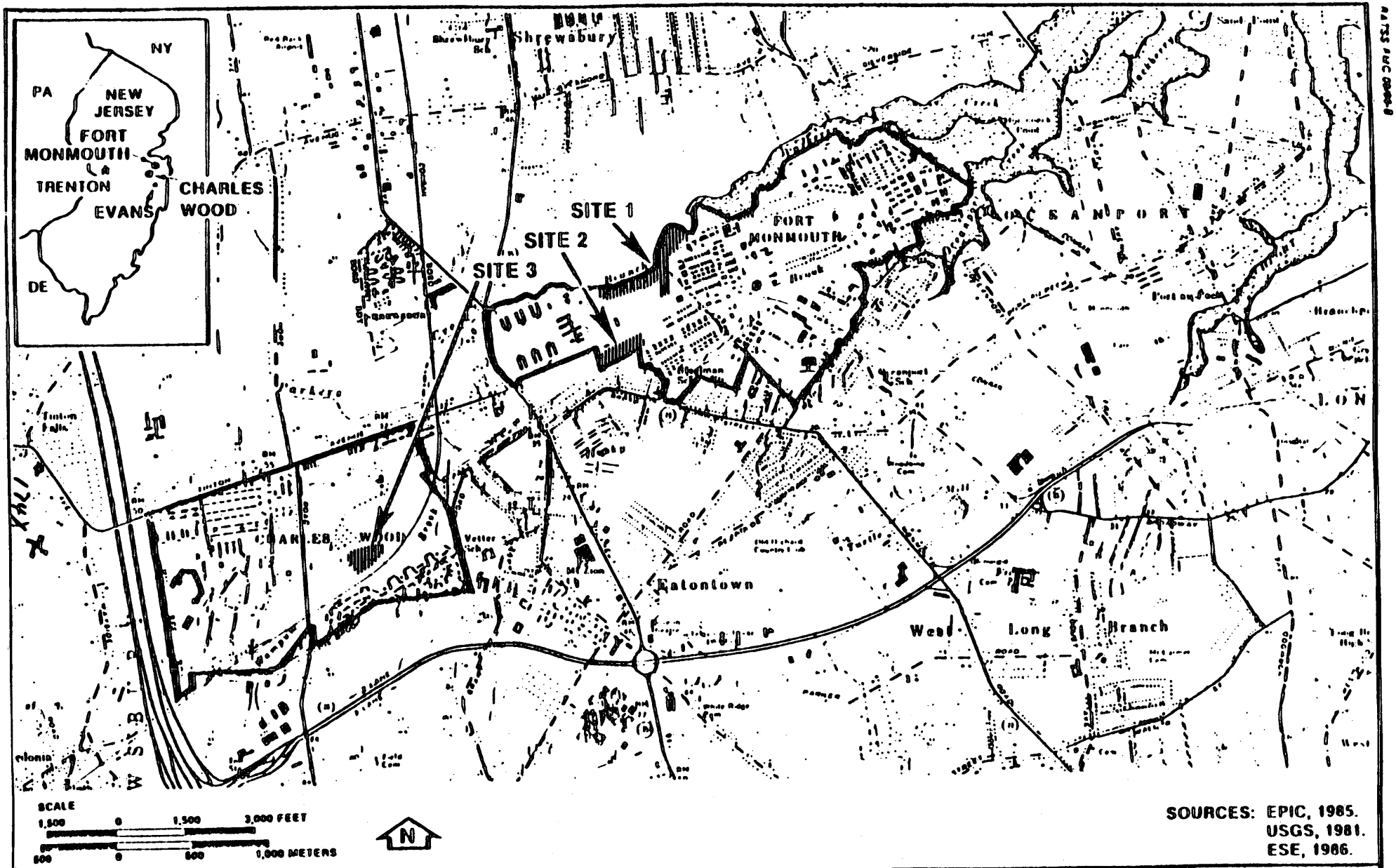
EPIC Site Number*	EPIC Description of Site	Assessment of Site†
1	A landfill located on the Main Post Area of Fort Monmouth. The site is bounded on the north by Parkers Creek and Lafetra Brook, and Mill Brook bisects two of the site fill areas. Landfill activities were initiated prior to 1947 as evidenced by photographs of trenches and mounded materials. Ground stains were also noted during the period of operation of this site.	Identified in the 1980 IIA as Landfills 1, 3, 4, and 7. Items disposed at the area reportedly included batteries, pesticide containers, fluorescent tubes, electronic components, garbage, asbestos, STP sludge, photographic chemicals, construction rubble, ash, boiler scale, and petroleum, oils, and lubricants (POL). The landfill area was used from the 1940s through 1979. The site has revegetated and only the area along Parkers Creek is still readily identifiable as a landfill. Monitor wells have been installed and surface and ground water monitoring is performed at the site in accordance with State of New Jersey permit requirements. The area is described in Section 2.3.1 of this report.
2	Possible landfilling operation on the Main Post area of Fort Monmouth. Dark-toned ground stains and small contiguous mounds of light grey-toned materials. Photographs indicate activities were conducted at this site prior to 1963 and ended prior to 1970.	Identified in the 1980 IIA as Landfill 2. The landfill was reportedly used from 1964 to 1968. Wastes disposed of at this site reportedly included POL and garbage. The site has revegetated and is currently used as a leaf dump and compost area. Little evidence exists to indicate the area was formerly used as a landfill.

Table 3-1. Description of Potential Contaminant Sites Identified by Photographic Imagery (Continued, Page 2 of 2)

EPIC Site Number*	EPIC Description of Site	Assessment of Site†
3	Prior to 1957, sludge storage has reportedly occurred. The site is located along a road in the southeast area of CWA, immediately north of the railroad. Photographs indicate the use of heavy machinery in the area. In 1963, the area has revegetated and no mounded materials are present. In 1969, mounded materials are again present. In 1970, the mounded materials have been removed.	The 1980 IIA indicates the site was used as a storage area for treated sludge. The site is located in the golf course area of CWA. The sludge was periodically spread over the golf course as a soil conditioner/ fertilizer. Available information did not indicate any hazardous materials were disposed of at the site. The area is currently used as a tree stump storage area.

*See Fig. 3-1 for site locations.
†Based on the IIA, ground investigation, and contact with Fort Monmouth personnel.

Sources: EPIC, 1985.
ESE, 1986.
USATHAMA, 1980.



SOURCES: EPIC, 1985.
USGS, 1981.
ESE, 1986.

Figure 3-1
POTENTIAL CONTAMINANT SITES IDENTIFIED BY PHOTOGRAPHIC IMAGERY

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland

4.0 1986 EVALUATION OF FORT MONMOUTH AND SUBINSTALLATIONS: CHARLES WOOD AREA AND EVANS AREA

4.1 FINDINGS

4.1.1 LANDFILL STUDIES

The 1980 IIA recommended Fort Monmouth perform surface water and ground water monitoring around the base landfills and forward the results to USATHAMA for review. The installation, as part of a landfill closure procedure, initiated studies at the operating landfill. The studies included the installation of ground water monitor wells. The results of the studies indicated that the landfills were not degrading the surface waters or ground water.

In 1984, USAEHA initiated surface water studies around all major landfills on Fort Monmouth. The results of these studies indicated no significant degradation of stream water quality as a result of landfill leachate. The base submitted the monitoring data and was issued an NJPDES permit (NJ #0057274) for the landfills. The base has continued monitoring programs through USAEHA studies and through monitoring by RCA Service Company (the contractor providing operating personnel for Fort Monmouth). The State of New Jersey Department of Environmental Protection will evaluate the data and determine if any discharges from the landfill are contaminating the ground water and adversely impacting the health and welfare of the local population.

4.1.2 PUBLIC MISCONCEPTIONS

Information provided by the EPA Region II Administrator and the EPA contractor FIT team to the Special Committee to Investigate Hazardous Waste Disposal at Military Installations, established by the New Jersey State Legislature, resulted in the public misconception that Fort Monmouth officials did not care about the effects of toxic materials and wastes on the citizens of New Jersey. In December 1985, the commander of CECOM was invited to provide the Committee with specific information on radioactive material leaks at EA and potential health risks from unfenced and unposted sludge drying beds at Fort Monmouth.

In January 1986, the Committee was provided with specific documentation indicating all problems with radioactive leaks had been handled in accordance with established NRC procedures. Contaminated materials were removed and properly disposed of according to NRC procedures. The areas were subsequently surveyed with appropriate radiation detecting devices and have been declared by USAEHA as available for unrestricted use.

In January 1986, the Committee was also provided with specific documentation indicating that: (1) sludges and supernatant liquids had been removed in 1981 from all sludge drying beds and inactive STPs at Main Post, CWA, and EA; (2) the STPs at Main Post and CWA were demolished between 1981 to 1983, and there is nothing to fence and post; and (3) the STP at EA, although intact, is not operated and has been cleaned and sanitized.

4.1.3 SEWAGE TREATMENT PLANT

In 1981, sludges and supernatant liquids were removed by a contractor from the inactive STPs at Fort Monmouth Main Post Area and CWA. These sludges were transported off the installation and disposed of by contractor. Between 1981 and 1983, another contractor demolished the STPs located at Main Post Area and CWA. No potential contaminants remain at the former locations of the STPs, and no problems are anticipated.

Since the IIA, the sewer system at EA has been connected to the Wall Township Treatment Plant. In 1981, all sludges and supernatant liquids were removed by contractor from the inactive EA STP. The entire STP was cleaned and sanitized. No potential contaminants remain at the STP, and no problems are anticipated.

4.1.4 SITES IDENTIFIED BY PHOTOGRAPHIC IMAGERY

Three potential contaminant sites were identified by photographic imagery. Two of these sites are landfill areas located on Fort Monmouth

Main Post Area and the other site was located on CWA. Site 1, located on the Main Post, was a landfill used from the 1940s through 1980. This is the same landfill described in Section 4.1.1 which Fort Monmouth is currently required by NJDEP to monitor for ground water and surface water contamination.

Site 2 is located on Mill Brook in the Main Post Area. This site currently serves as a compost area. Fort Monmouth is monitoring the surface water in Mill Brook upstream and downstream of the fill site.

Site 3 is located in CWA. Available information indicates the area has been used in the past for the storage of treated sewage sludge. The sludge was used as a soil conditioner/fertilizer on the golf course. The area is currently being used to store tree stumps. No monitoring activities are performed at this site because no contaminant problems are anticipated at this site.

4.2 CONCLUSION

Available geologic evidence and information on contaminant sources indicates the potential for the migration of contaminants from Fort Monmouth, CWA, and EA by surface and subsurface waters.

4.3 RECOMMENDATIONS

It is recommended that USATHAMA not conduct a remedial investigation at Fort Monmouth or subinstallations CWA or EA.

It is recommended that Fort Monmouth continue with the surface and ground water sampling program established for the Main Post landfill areas.

Fort Monmouth Complex, New Jersey

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APPENDIX A

FORT MONMOUTH PERSONNEL CONTACTED

NAME	TITLE
Mr. Vincent Dewar	Deputy Facility Engineer
Mr. Dinkerrai Desai	Chief, Environmental Division

APPENDIX B

NJPDES PERMIT FOR DISCHARGE
TO GROUND WATER

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
CN 402
Trenton, N.J. 08625

PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to the further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit.

Permit No.	Issuance Date	Effective Date	Expiration Date
NJ 0057274	6/10/85	7/15/85	7/14/88

Name and Address of Applicant	Location of Activity/Facility	Name and Address of Owner
U.S. Army (CERCOM) Facilities Engineer Building 167 Ft. Monmouth, NJ 07703	Ft. Monmouth Sanitary Landfill Sherrill Avenue Ft. Monmouth, NJ 07703	SAME AS APPLICANT

Issuing Division	Type of Permit	Statute(s)	Application No.
Water Resources	NJPDES Permit for Discharge to Ground Water	N.J.S.A. 58:10A-1 et seq. N.J.A.C. 7:14A-1 et seq	NA

This permit require the U.S. Army to monitor the ground water at a sanitary landfill in Ft. Monmouth by operating and maintaining 4 ground water monitoring wells according to the specific and general conditions of this Initial Interim NJPDES permit. The Initial Interim NJPDES permit is intended to establish an adequate ground water monitoring program at the above named facility. This permit is only intended to obtain ground water data to evaluate the current status and impact of this facility on ground water. It shall not be construed, nor is it intended to be an approval of any activity that the permittee has conducted which adversely effects the environment, ground or surface water quality, or threatens the public health, safety, or welfare.

The issuance of this Initial Interim permit does not indicate that the Department has made a determination of the technical adequacy of the information available. Initial Interim permits shall not be construed as, nor are they intended to be, long-term approvals; these permits are of limited duration.

The data generated through the initial Interim NJPDES permit will be used by the Department to evaluate the current status and impact of existing facilities on ground water quality. It will also give the Department information to determine if there is any potential or actual threat to public health or safety or damage to the environment due to current or past practices. Based on the information generated by the issuance of this permit, the Department may require the permittee to reduce the quantity of discharge, upgrade or install additional treatment, install additional monitor wells, conduct ground water decontamination procedures or cease discharges to waters of the state.

The issuance of this Initial Interim permit does not bind the Department to renew this permit, nor does it relieve the permittee of the duty to submit additional information as specified in Chapters 6 and 10 of the NJPDES regulations at the time of application renewal or as may be required by the Department prior to permit renewal. Additionally, this Initial Interim NJPDES permit does not relieve the permittee of any liabilities associated with public health or safety problems or environmental damage created as a result of the permittee's activities.

Documents attached hereto shall become part of this permit.

Approved by the Department of Environmental Protection
BY AUTHORITY BY:
JOHN W. GASTON, JR., P.E.
DIRECTOR
DIVISION OF WATER RESOURCES

ARNOLD SCHIFFMAN, ADMINISTRATOR
WATER QUALITY MANAGEMENT

DATE

The word permit means "approval, certification, registration, etc."

P-1/89X

(GENERAL CONDITIONS ARE ON THE REVERSE SIDE.)