35TH YEAR—NO. 248—482-1021 OAK RIDGE, TENNESSEE, MONDAY, JANUARY 2, 1984

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Cesium identified near Warehouse Rd.

By ROBIN HEAD INTEMANN

The Department of Energy has identified four areas near Brisbane Road and Athens Road in the Warehouse Road area with elevated levels of cesium, a radioactive fission by-product.

Confirmation of the presence of cesium was made several weeks ago after a DOE survey identified a number of radionuclides in the environment along a route once used to transport radioactive materials. The extent and locations of the cesium was made available today.

The areas do not pose a threat to health or safety, Jim Alexander, DOE spokesman, said Tuesday.

Alexander said that additional information, including results of soil sampling in the area, "confirm areas where cesium levels are elevated."

The range of the levels is from six to 29 picocuries per gram. The expected normal level for this area is one to two and a half pc/g.

Bobby Davis, chief of health protection at DOE, also said Tuesday that the assessment indicates that there is no health or safety hazard.

However, further evaluation of the area is recommended, Alexander said, but details on additional studies are not yet available. DOE has sent the data to the Tennessee Department of Health and Environment and is waiting to receive feedback on possible suggestions or recommendations, Alexander said.

Alexander explained that DOE manages the Formerly Utilized Sites Remedial Action Program from its Oak Ridge Operation. This involves monitoring and cleanup of old Atomic Energy Commission sites and other facilities around the country where radioactive materials were once used. The cesium level set by FUSRAP is 80 pc/g.

"So, it is well below that here, although we still have to make some decisions concerning what we have (in Oak Ridge)," Alexander said.

Davis said that the elevated cesium levels are restricted to the "general vicinity of the corner of Brisbane and Athens and in the general area between Belgrade Road."

DOE also found elevated levels of cobalt-60 on Midway Road as a result of the same environmental survey. Alexander said that Oak Ridge Associated Universities should begin today or Thursday to further evaluate that area. The presence of cobalt is restricted to a small area, about six feet by six feet, on private property near an EG&G ORTEC parking lot.

Other radionculides found as a result of the survey were radium and potassium-40. Of the potassium, Davis said, "There were some slightly elevated areas. It was determined this was due to the rock strata present in the area."

Davis explained that other areas in the country with similar shale outcrops indicate similar levels.

Potassium was found along Scarboro Road near the old guardhouses. Davis attributed the elevated levels to an outcrop of shale nearly.

Elevated levels of radium were found in the Warehouse Road area, but the levels were not high enough to warrant further evaluation.

The environmental survey began last fall by an Oak Ridge National Laboratory mobile unit designed to detect radionuclides. This followed discussions by DOE officials with long-time residents of the city in an effort by DOE to eliminate further environmental problems due to waste disposal practices.

Waste disposal practices and pollution problems in Oak Ridge have drawn increased attention since DOE disclosed last spring that more than two million pounds of mercury were unaccountable.

The Oak Ridger

35TH YEAR—NO. 254—482-1021 OAK RIDGE, TENNESSEE, TUESDAY, JANUARY 10, 1984

Remove soil where cobalt detected

A crew from Oak Ridge National Laboratory Monday began to remove soil contaminated with cobalt and cesium on a small plot of land on private property near an EG&G ORTEC parking lot.

A mixture of cobalt 60 and cesium 137 was identified in the area on Midway Road in December. According to the Department of Energy, the radioactive material is confined to a small area, and does not present a threat to health or safety.

Jim Alexander, DOE spokesman, said today that the ORNL crew went to the site at 1 p.m. Monday to start the cleanup operation. He said work was underway at the site today, and might be completed today.

Cleanup will involve excavating the soil from an area approximately 100 square feet in size, Alexander said. He said a layer of uncontaminated topsoil ranging from a depth of four inches to three feet covers the contaminated soil, which is about a foot thick. About 55 cubic feet of soil will be removed, he said.

The clean topsoil will be used to refill the excavation.

As the dirt is removed, monitoring equipment will be used to verify when there is no longer any cesium or cobalt present, Alexander said.

The contaminated soil will be double-bagged in plastic and placed in fibreboard drums. It will be transported to ORNL, Alexander said.

The presence of the radioactive fission by-products was discovered after a DOE survey identified a number of radionuclides in the soil along a route once used to transport radioactive materials.

The Oak Ridger

35TH YEAR—NO. 256—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, JANUARY 12, 1984

56 cubic feet removed —

Feel all cobalt-tainted soil gone

George Foltz, middle, uses a probe to penetrate a test site. Robert Gosslee and Linda Sowell watch as the team prepares to dig a test hole.

A health physics team from Oak Ridge Associated Universities on Wednesday excavated what it hopes is all the contaminated soil from a site on Midway Road on private property near an EG&G ORTEC parking lot.

Cobalt and cesium — both of which are radioactive — were found in a small area at that site during environmental monitoring in December.

Linda Sowell, health physics team leader, George Foltz and Robert Gosslee, health physics technicians, all with ORAU, removed about 56 cubic feet of contaminated soil from the site Wednesday.

They filled six 61-gallon drums and one 55-gallon drum with the dirt, according to Jim Alexander, a Department of Energy spokesman.

Analysis of the dirt shows high levels of cesium present. According to Alexander, [illegible] picocuries per gram is regarded as a cleanup standard for cesium. The dirt removed from the Midway Road site showed some readings as high as 10 picocuries per gram, Ms. Sowell said this morning.

Some of the barrels of dirt have already been taken to Oak Ridge National Laboratory for

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Happy Birthday A-Train! Lots of Ya! AD

surprises in latest

tes info from Y-12

OE CULVER

...inuing saga of con- n in Oak Ridge is likely a strange twist next n the Department of have a report ready ission to the state, but will have no one able to report.

-olem is that the report ntory of what is stored Creek burial grounds e Y-12 Plant — is and the state has no ed to receive classified according to Wayne ting chief of the en- l protection branch Oak Ridge Operations. the Tennessee Depart- ealth and Environ- not even submitted persons it would like to ired. It usually takes ter names are submit- a security clearance ied, Jim Alexander, DOE spokesman, said this morning.

DOE is required by a memorandum of understanding it has with the state and the Environmental Protection Agency to submit a series of reports on studies of the environment in Oak Ridge.

The memorandum was reached in May of last year after disclosures that about 2 million pounds of mercury was unaccounted for, and after other environmental concerns were expressed.

The most recent such report going to the TDHE's department of health and environment's division of water management and division of solid waste management is based on a groundwater monitoring conducted from June through September, 1983, by the Law Engineering Testing Company of Atlanta.

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Cobalt

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disposal, while others are being held in an ORAU warehouse for further analysis.

The health physics crew was back at the site this morning to dig some test holes to confirm that all the contaminated dirt had been removed.

While Foltz and Gosslee dug, Ms. Sowell periodically checked the hole with a hand-carried monitoring device to see if any more radioactive material would be found.

She said that she expected the confirmatory work would take only about an hour, unless some additional radiation was detected.

Alexander said DOE expects to know by Friday whether or not the dirt removed is sufficient to bring the site to within environmental guidelines.

The results of the cleanup will be provided to the state Division of Radiological Health, which will have the final say on whether the site has been satisfactory cleaned, he said.

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— Y-12 wastes —

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The study's data are being used by Bechtel National, Inc., in Oak Ridge to evaluate the situation at the burial grounds. Bechtel will provide recommendations in midsummer to Martin Marietta, who will become operating contractor of the three DOE plants here on April 1, about remedial measures that need to be conducted.

The Law report, Hibbitts said Wednesday, is a first step in determining what is needed for the Y-12 solid waste disposal area.

Hibbitts said the Law report contains very few surprises. One surprise, though, is that some uranium was found in groundwater under the Chestnut Ridge sludge disposal basin.

"The thought is that this may be surface water that went down" one of the test wells dug during the study by Law Engineering, Hibbitts said.

The test well actually goes through the basin itself, according to Hibbits, and it is possible that what happened is that some surface water leached through the sludge and ran into the test well.

The sludge on the surface has uranium in it, Hibbitts said. If rain falls onto the sludge, "One would not be surprised to have uranium in that particular water."

But it is not expected that uranium would be in the groundwater, which is about 50 or 60 feet beneath the surface, Hibbitts said.

A second surprise, and a more positive one, is that the oil land farm in the Bear Creek Valley, where waste oils are taken to be biodegraded, does not appear to be as large a problem as it might be, Hibbitts said.

"The earlier indication from monitoring of runoff from that area and of groundwater was that it might be a significant contributor to contamination of both surface and groundwater in that area," Hibbitts said. "Further evaluation shows that this land farm was built over some old disposal pits which appear to be the cause of the contamination of the water."

Some groundwater contamination has occurred at the site. The Law study shows the presence of nitrate, uranium and tetrachloroethylene. PCBs and other organics were generally below detection limits.

The reason the report contains few surprises, Hibbitts said, is that almost all the disposal areas are located in the same geological formation — Conasauga shale — which has been studied extensively by Oak Ridge National Laboratory. "It's fairly easy, with quite a bit of reliability, to extrapolate ORNL's knowledge about what happens at the Y-12 burial grounds," he said.

Hibbits also mentioned that Oak Ridge residents don't get any of their water from the groundwater in the Y-12 area, so any contamination found would not affect the city's drinking water.

He said that the United States Geological Survey (USGS) is going to be conducting a groundwater study on the federal plant property this psring. "They (USGS) looked at the Y-12 situation and decided there is no reason to even come into the city of Oak Ridge, there's no reason for concern for groundwater in Oak Ridge," Hibbitts said.

Barry Sulkin, a state water control inspector, said, "We have not found the groundwater to be contaminated off reservation property." State officials tested two residential wells about two miles from Y-12 and "there were no problems there," he said.

Pollutants have been found in lakes and streams off the federal property, Sulkin said.

Water samples taken at two disposal sites showed elevated levels of uranium, nitrates, PCBs and an industrial solvent. Test results from a third site were inconclusive, Hibbitts said.

But researchers found the worst contamination near four disposal ponds constructed in the 1950s, according to the report. Samples taken from wells drilled near the "S-3" ponds showed higher than expected levels of nitrate, cyanide and radioactive elements thorium, beryllium and uranium, the report said.

High levels of chemicals also were found in nearby Bear Creek, it said. Water from the creek eventually reaches the Clinch River, which empties into the Tennessee River near Kingston.

Mar. 27, 1984

Find cesium, cobalt in city sewer system

By RICHARD MERRITT

The Oak Ridge city sewer system has been contaminated with radioactive cesium and cobalt, with the source most likely being a local company.

So Bill Kaspar, local Department of Energy assistant manager of safety and management, told City Council Monday night. Council was holding its regular meeting, preceded by a public hearing on the proposed fiscal 1985 city budget. Kaspar also reported on the efforts in environmental clean-up DOE has made since his last visit to council in December.

Kaspar said that on Thursday afternoon, a team of scientists from Oak Ridge Associated Universities were scanning the fill dirt used to cover the new sewer lines for mercury and other contaminants along Emory Valley Road when the radiation was detected.

"In that study, it showed a higher than normal reading across from the Daniel Arthur Rehabilitation Center," Kaspar explained. "We notified the city, and the state, and we notified a local firm," which Kaspar did not identify.

The Tennessee Department of Radiological Health, which issues permits and licenses for the dsicharge of radioactive materials, said there is a possibly that the source of contamination is Quadrex Corp., which is located in the Municipal Industrial Park off Emory Valley Road.

Charles West, official from radiological health, said this morning from Nashville, "We don't know yet if it is Quadrex. We don't have enough information yet, but it is a distinct possibility. It is a distinct possibility."

Officials from Quadrex could not be reached this morning for comment.

West said that a team of experts from his department are on their way to Oak Ridge to gather more data to determine where the contamination came from and what form it is in. He said he expects that samples will be sent back to Nashville by the end of the day for analysis.

Kaspar told council, "I want to emphasize that there isn't a health hazard, but it is something that has to be cleaned up. The radioactivity is in the sewer line itself."

Kaspar explained that there was a leak in the sewer line, and that the dirt around the leak is also contaminated. "The material made its way to the sewer treatment plant," Kaspar continued.

"We found a hotspot across from the Daniel Arthur Rehabilitation Center," Wayne Range, DOE spokesman said this morning. After additional sampling, ORAU and Wayne Hibbitts, DOE special assistant for environmental coordination, "began pulling man hole covers and putting detetcion equipment in them," Range explained.

It was then that it was determined that the sewer system itself was contaminated, Range said. "It appears as they checked that it (contamination) was coming from the Municipal Industrial Park. On the basis of that, we notified the city and state."

The state has responsibility over these matters, since it is the governmental entity that issues permits for such activities.

Range said that on Monday, as additional information came in, "we checked further at the sewage treatment plant, and found contamination there."

The city and DOE have a contract whereby the city sells sludge for use by the forestry management program of Oak Ridge National Laboratory, Range explained, adding that the sludge is also contaminated.

Range said that DOE has been buying the sludge since November, and deliveries average about 50,000 gallons of sludge a week. To date, DOE has taken delivery of about 500,000 gallons of sludge, Range added.

The sludge is spread on pasture land off Bethel Valley Road west of the quarry, Range explained. "We found that it was contaminated and that there was runoff into McCoy Branch."

Late last week, Range added, DOE turned away two city trucks, each carrying 5,000 gallons of sludge. ORNL has

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Cleanup

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been asked to study the problem, Range said, adding that the spread sludge reads about "twenty to 60 microroentgens per hour at a meter from the sludge in place."

Background radiation for area where the sludge is spread is about five to ten microroentgens, Range said, which means that sludge is about four to six times more radioactive than background readings. "The runoff slightly exceeds DOE concentration guidelines," he added.

West explained that companies are allowed to put certain amounts of radioactive material into a general sewage treatment system, as long as state guidelines are followed.

"It is permitted if it is done conrrectly," West said. "Nothing is supposed to go into the system unless it is soluable in water. It has always been permitted to put small quantities into the sewage system."

The state sets guidelines on the concentrations of the materials put into a sewer system, as well as annual limits of materials disposed of this way.

West could not elaborate any farther until the results of the department's study of the area is completed. For example, he said he did not know what form the cesium and cobalt was in to determine whether or not state regulations were violated.

In his report to council, Kaspar said, "I was last here in December, and I have made the commitment to come here on a regular basis. We have made significant progress — the biggest item has been the development of an environemntal recovery plan. It lays out an aggressive program to recover the environment in Oak Ridge."

Kaspar explained that there will be a funding level of $70 million for the upcoming federal fiscal year, and levels around $100 million for the out-years. "This is the first time we really have a comprehensive plan."

"We are on the right track," Kaspar continued. "The biggest improvement took place earlier this month. The S-3 Ponds were shut down. They are receiving no more waste. On March 8, we ceased adding waste to the ponds.

"The plan we sent to Congress and the closing of the S-3 ponds represent major steps forward in environmental recovery," Kaspar concluded. "We are proud of it, and we pledge continued communications."

The Oak Ridger

36TH YEAR—NO. 49—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, MARCH 28, 1984

Month to solve sewer sludge

By RICHARD MERRITT

City officials estimate that they have the capacity to hold on to contaminated sludge for about a month's time without adversely affecting the operation of the city's sewage treatment plant.

Last Thursday, a team of Oak Ridge Associated Universities scientists found during a check for mercury and other contaminants that there was radioactive cobalt and cesium in the sewer system along Emory Valley Road. Preliminary indications are that the contamination came from a private industry source, probably in the Municipal Industrial Park area.

Also, officials from Quadrex Corp., which is located in the industrial park, said this morning that it doesn't look like their facility is the source of the contamination. State officials also said this morning that they aren't sure whether Quadrex is the source of the contamination.

Officials from the state Department of Health's radiological health division have been in town since late Tuesday afternoon gathering data on the source of the contamination. Because the source seems to be from a private industry source, the state has primary responsibility, since it issues permits for the release of radioactive materials.

"We are not able to isolate what's happening yet," said Mike Mobley, official with radiological health, this morning from Nashville. "As far as where it's coming from or how it is getting there — we haven't established that to our satisfaction."

Mobley did say that an answer could come as early as today.

"There is no immediate health hazard to the general public," Mobley emphasized. "The levels are not high enough to cause that problem."

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Sludge

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The contamination has spread from the Emory Valley sewer line west to the new sewage treatment plant, and has been found in the sludge that the city supplies to Oak Ridge National Laboratory for use in its forestry managemment program.

The Department of Energy has stopped accepting the sludge, and there was worry that the city's sewage treatment plant would have to be shut down, since the contaminated sludge could not be hauled away.

"We can keep it running," City Manager Lyle Lacy said of the treatment plant this morning. "We have no immediate capacity problems.— we are changing our operational procedures on a short-term basis."

Lacy explained that the city will be using the drying beds of the old sewage treatment plant: By using this method, instead of carting the sludge away, the volume of sludge will be reduced considerably.

The city has an agreement stopped discharging into the sewer system last Thursday because the company was installing a new filtration system.

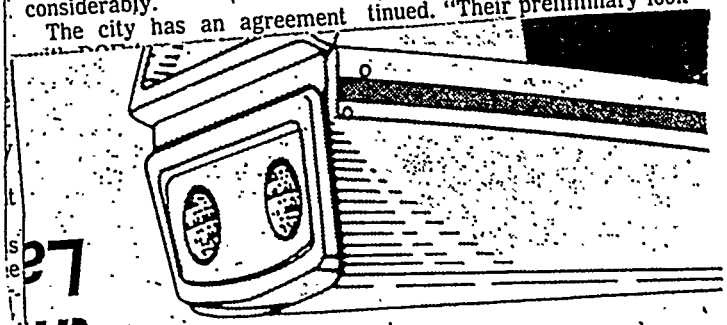
"Now, our drains are under lock and key," Mohrbacher said. "All our records indicate that we are in compliance with state regulations. We've looked at everything we've done, and we don't see any contributions from us."

Quadrex, which recently located in Oak Ridge, decontaminates tools and equipment so they can be re-used, instead of being destroyed because of contamination.

"We handle materials from all over the country," Mohrbacher continued, emphasizing that all are low-level materials. He added that cesium and cobalt "are the predominant ones that come in."

Mohrbacher said that state teams looked at Quadrex's operations Tuesday, but have not yet reached any conclusions.

"Today, the state is looking in more detail at the sewer system," Mohrbacher continued. "Their preliminary look



The Oak Ridger

36TH YEAR—NO. 50—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, MARCH 29, 1984

Quadrex source of contamination

By RICHARD MERRITT

State officials this morning confirmed that Quadrex Corp. is the source of cesium and cobalt contamination in part of the Oak Ridge sewer system.

"There's no question that it's Quadrex," Mike Mobley, official with the state Department of Health's radiological health division, said this morning from Nashville. Quadrex is located in the Municipal Industrial Park off Emeroy Valley Road.

Late last week, a team of scientists from Oak Ridge Associated Universities found radioactive contamination in the Emory Valley sewer line. A team of state officials has determined that the contamination has spread from the Emory Valley line to the west end sewage treatment plant.

The contamination has also turned up in the sludge produced by the treatment plant, which

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Quadrex

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dustry, the state has primary enforcement because it issues permits for the release of materials.

"There's no question it's Quadrex, now it's a matter of determining how much material was put out," Mobley explained. "There is no question that they put out some materials they're not supposed to."

Mobely explained that certain amounts of materials are allowed to be discharged into the sewer system, but all materials must be soluable in water. Mobley said that some of the materials discharged by Quadrex were not soluable, and are therefore showing up in the sludge.

Mobley said that the contamination seems to be concentrating itself in the sewer system by "a considerable factor. The problem with cesium is that it ties with organics — concentrating all your cesium in the sludge."

As for possible enforcement activities by the state against Quadrex, Mobley said that must wait until all the data and analyses are completed.

"I can guarantee some kind of action," Mobley coninued. "We cannot allow them to continue under the same system. We have the ability to levy civil penalties — but we haven't analyzed the data yet."

Mobley said the state will have to determine whether or not the discharges are "a gross violation," or a problem with the state's permitting procedures.

Mobley added that primary state investigators have already left Oak Ridge, but added that officials will be "in and out of Oak Ridge for some time until it

Joe Mohrbacher, Qaudrex plant manager, said this morning, "We will not be discharging any more materials until we get the results from the state and get our system to take care of the problem."

Mohrbacher explained that Quadrex just installed a new filtration system, and that Quadrex hasn't discharged any materials since last Thursday. Mohrbacher added that another filtration system has also been ordered, but he does not know when that system will be installed.

"We are looking at two different systems," Mohrbacher explained. "We started in January (with one system) recycling the water in-house. The designs we have on the board will solve the problem — but we need to know the state's findings."

"They (the state) have been very thorough," Mohrbacher continued, "but we haven't had the opportunity to see the data yet."

Quadrex is principally involved in cleaning tools and equipment that has been contaiminated, so they can be reused instead of being buried.

"We've reduced the work we're doing to minimize the potential of generating the liquids," Mohrbacher continued. "There has been a reduction in operations."

The state's emphasis is now turning to the sewage treatment system, Mobley said. "We will work with the city on cleaning up the sewage treatment plant. We want to keep the plant operating."

A meeting was scheduled for 1 p.m. today with officials from the city, DOE, the state and the Environmental Protection Agency to discuss strategy for dealing with the sludge problem. The meeting was originally scheduled for this morning, but was postponed until this afternoon because EPA officials could not get to town in time.

"We will be talking specifical-

assistant city manager, said this morning. "If the radiation levels on the sludge are as low as our information so far indicates, we may be able to resolve this quickly."

King added, "It depends on the states and EPA — their decision will dictate the actions we take."

About 20 city employees — those who did maintenance on the sewer line and who work at the treatment plant — are being tested at ORAU's REAC/TS (Radiation Emergency Assistance Center/Training Site) facility.

King emphasized that the preliminary data collected to date show that there is no risk of radiation exposure to the workers.

The Oak Ridger

36TH YEAR—NO. 51—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, MARCH 30, 1984 25 CENTS

DOE says it will take city's polluted sludge

The Department of Energy agreed to allow slightly contaminated radioactive sludge found along the city's sewer belt to be placed at a research area on Bethel Valley Road.

Jim Alexander said today that sludge will be accepted at the Oak Ridge National Laboratory's forestry research plot on an "as needed basis."

"DOE has agreed that during the next two weeks, on a limited basis, as needed, the city can deliver the material to our property," Alexander said.

The agreement was reached between DOE and the city Thursday. No shipments are expected to be transported until Monday or Tuesday, Alexander said. ORNL must first sample the area before more material is placed there.

Radioactivity was detected from a broken sewer line. Tennessee Department of Health and Environment officials verified that the source of the radioactivity was Quadrex, a company in Oak Ridge.

Sampling of the sludge is expected to be conducted for the city by Oak Ridge Associated Universities.

State gives Quadrex 4/13/84

60 days to form plan

By RICHARD MERRITT

The state of Tennessee has given Quadrex Corp. two months to come up with a permanent plan to control the amount of radioactive materials into the Oak Ridge sewer system.

Officials from Quadrex and the state's division of radiological health met Thursday to discuss the problem. Last month, Quadrex was identified by the state as the source of radioactive cesium and cobalt found in the sewer system, and concentrating in the sludge at the sewage treatment plant on the west end of town.

"We're going to give them 60 days to come up with a permanent solution," Mike Mobley, radiological health official, said this morning. "We'll give them another 60 days to implement that plan."

An interim plan for the contaminated water was also discussed at the meeting. "It was a real good meeting. They submitted a proposal for the interim release of the waste, and they have no problems with it," Mobley continued.

Joe Mohrbacher, Quadrex plant manager, said this morning, "We asked for permission for interim storage on the site. We are also in the process of designing a water treatment system, which we will get to them (the state) in 30 to 60 days."

Mohrbacher said that Quadrex will "do on-site storage and treatment of the water. We asked for permission to release the treated water (into the sewer system), but there has been no decision yet."

Mohrbacher said that the treated water that may be

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Quadrex

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released under the new guidelines will be "a factor of 40 ess than what we are currently ermitted to release."

Mobley said that the new elease guidelines range between 40 and 100 times less than he current permit. "The new evels are levels that can be eleased into the environment. n theory, they will be at levels that could be released into streams or rivers, but of course in this case, it will be into the sewer system."

Mobley went on to explain that Quadrex has installed large tanks on-site to store the water. "They will filter and treat it, then if that doesn't bring it down to the levels of release, they will hold it on-site."

Mobley said that since the problem was identified last month, Quadrex hasn't released any materials into the sewer system. Quadrex has a state permit to release certain amounts of materials into the system, but the state has found that Quadrex released some insoluable materials (the permit only allows soluable materials) which has concentrated in the sludge at the treatment plant.

The state is still collecting and analzing data on the concentration of the radioactive materials in the sludge, and so not come to any conclusions yet on how to proceed.

"We still have more data to analyze," Mobley explained. It's basically a matter that certain materials go almost exclusively to the sludge. It's not going out in the treated water. It means that all the radioactive material is going into the sludge and re-concentrating."

The delay in getting the data analyzed, Mobely explained, is that the state's laboratory equipment is out of commission, and it will be a number of weeks before it is repaired. Mobley said the state is also looking to labs that could analyze the samples collected by the state.

Mobley added that the state will soon be issuing an amendment to Quadrex's release license. A part of this amendment would entail monitoring by Quadrex at the treatment plant, as well as monthly reports to the state on radioactivity levels at the sewer plant. The state will also be taking samples.

The Oak Ridger

35TH YEAR—NO. 237—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, DECEMBER 16, 1983

DOE still checking cobalt

The discovery a week ago of high levels of cobalt-60 by the Department of Energy as part of an on-going environmental monitoring program remains of concern to DOE officials.

However, the area in which the radioactive material was found is small and poses no apparent threat to human health, said Jim Alexander, DOE spokesman.

DOE announced last week that cobalt-60 was found on Midway Road near the parking lot of EG&G ORTEC. The property is privately owned by James E. Keeton, an engineer at Oak Ridge National Laboratory.

Alexander said Thursday that DOE has filed a request for access to the property in order to continue monitoring and determine what steps need to taken.

Further analysis will be done by Oak Ridge Associated Universities, Alexander said.

Keeton, who has owned the property for a number of years,

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cobalt

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said, "I'm surprised it's there. I have no idea of the source."

Alexander said that it is likely that the area will have to be excavated. Initially it was stated that the cobalt was within a 10 by 10 feet area. However, it now appears that the area is smaller, about six by six.

Keeton said that he will cooperate with DOE in their efforts. "DOE has handled this in the appropriate way ... They have everything well in hand," he said.

The cobalt was found after DOE surveyed the area for radioactivity. Cesium was found in some areas along a route once used to transport radioactive material in the early days of Oak Ridge. Alexander said that cesium is still present in a few areas in the warehouse district on Warehouse Road.

"There are some elevated areas, but there is no cause for concern," he said.

DOE is providing the information to the Tennessee Department of Health and Environment. The monitoring began following increased attention to DOE's environmental problems because of waste disposal practices, particularly after it was disclosed that 2.4 million pounds of mercury was unaccountable during a 20-year period beginning in the 1950s.

Cobalt site checked —

The Department of Energy continues to monitor for radiation after identifying the presence of cobalt-60 on Midway Road last week. The monitoring began last fall when an Oak Ridge National Laboratory van, below, detected radioactivity along a route used to transport radioactive material in the early 1940s. The cobalt was found on a grassy area near EG&G ORTEC. Ron Baldry, above, EG&G ORTEC's production manager of the Mobile Channel Analyzer, surveyed the area Friday. Baldry said today that the radioactivity "appears to be low." Baldry said that findings obtained from the MCA, designed to detect gamma radiation, will be sent to DOE. Jim Alexander, DOE spokesman, said that analysis is continuing. No decision has been made on what steps will be taken, but the cobalt apparently is confined to a very small area, about 10 feet by 10 feet in size. The property is owned by James E. Keeton. Efforts to reach Keeton were unsuccessful.

LWV letter on waste plan

Assurances that the Department of Energy will use the best technology, assure funding and make efforts to reduce waste are among the concerns voiced by the Oak Ridge League of Women Voters in its comments to DOE concerning the proposed Central Waste Disposal Facility.

The league's written comments will be included in the Environmental Impact Statement. A Dec. 20 deadline was set by DOE for comments concerning the facility. The proposed facility is designed to dispose of waste generated at DOE's three plants in Oak Ridge.

The comments were prepared by the LWV because members said they [illegible] required to be accountable to the city for its actions.

Dated Dec. 6, the comments were submitted for the LWV by Claudia Lever, president, and Sandra Edwards, resources chair. The complete text of the comments, addressed to Doyle Brown, DOE program manager for nuclear research and development, follows:

"The League of Women Voters of the United States, through member consensus, has developed positions on issues it has determined to be significant and worthy of extensive study by our group. Based on our positions concerning the use of natural resources the Oak

several suggestions for items we feel should be addressed by the EIS to be prepared in connection with plans for construction of a new Central Waste Disposal Facility on the Oak Ridge Reservation.

"1. A requirement that DOE develop and implement an ongoing program at all its Oak Ridge facilities to reduce the amount of low level radioactive wastes being produced. This program should be based on an examination of all processes that are sources of waste and should, whenever possible, involve process modification. Ideas for waste reduction should be solicited from all employees and

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N-wastes

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incentives be provided to encourage input.

"2. A requirement that the best technology be used in any facility that is built. Consideration should be given to the European compactor systems now being investigated by the TVA and to above ground storage that would allow for retrieval of the wastes if necessary in the future.

"3. A requirement that the necessary level of funding be assured. This facility must use the best technology available, not just the best available for whatever funds happen to be appropriated.

"The first item is based on our support for reduction of the non-essential portion of the solid waste stream and on our belief that the federal government should establish policies and programs to reduce the generation of solid wastes.

"The last two items are based on two positions. One is that safe disposal of hazardous wastes should be ensured. The other is that land use implies responsibilities of stewardship and should take into consideration social, environmental and economic factors.

"In the case of Oak Ridge, where no tax or other financial gains will accrue to the city as a result of the construction of the new facility, it is particularly important that social and economic factors be considered. Oak Ridge currently has a bad reputation because of past, and in some cases, still ongoing environmental degradation on the part of DOE. If this reputation is to be overcome, the city must be able to show that our environment will be protected by the very best technology and that the protection, unlike the in lieu of tax payments, does not depend upon tenuous funding.

"Thank you for this opportunity for input."

City Council will discuss CWDF comments at its Dec. 19 meeting.

The Oak Ridger

35TH YEAR—NO. 204—482-1021 OAK RIDGE, TENNESSEE, TUESDAY, NOVEMBER 1, 1983 25 CENTS

Nuclear wastes — Little or no hazard, benefits

By RICHARD MERRITT

A plan that could bring radioactive wastes from New York to Oak Ridge would have little or no health hazards, minimal economic benefits for the community, and would create an image problem for Oak Ridge.

So the consensus seems among various officials contacted recently by The Oak Ridger.

Two weeks ago, the Department of Energy held a public forum as a preliminary stage in the preparation of an Enivronmental Impact Statement. The low-level radiaoctive wastes, which are currently being stored at the Niagara Falls Storage Site, will either be stored for the long term at NFSS, or at one of the DOE reservations in Oak Ridge or Hanford, Wash.

A draft EIS on the move is expected in the spring of 1984, and the final EIS should be ready by the winter of 1984. "Right now, DOE does not plan to identify the site in the draft (EIS), but will after the final statement," says Pamela Merry-Libby, who heads a team of scientists at Argonne National Laboratory who will be assisting DOE in the EIS preparation..

While it is still too early in the EIS process, local officials believe that at this point, it doesn't appear that Oak Ridge will gain economically from the wastes being stored here, and that it will create an image of Oak Ridge as a waste dump site. (See separate story on how Oak Ridge ranks with other radioactive waste burial sites.)

"As I would see it at this moment and as I understand it, there would be no opportunity for taxes," says Jim Alexander, local DOE official. "The wastes will be shipped from one government location to another."

As for any potential increased employment from the waste burial here, Alexander says it would range "from zero to minimal."

Alexander points out that benefits would be in the "intangible" area.

"If the Oak Ridge Operations office can execute successfully any kind of program," Alexander explains, "and can clearly demonstrate that we can do the job, it enhances our ability for future projects."

City Manager Lyle Lacy says, "I don't see any positive return from our accommodating nuclear wastes." He adds that he doubts there would be any chances for the city to collect any taxes, and that this type of action wouldn't normally be included in the city's five-year financial assistance pact with DOE, which expires next year.

"It (the wastes coming here) has a tremendous impact in that people's perception of Oak Ridge as a dump," comments Mayor Roy Pruett. "We have the onus in the surrounding areas that we are a dump.

"There is no economic reason to bring it here," the mayor continues. "It brings with it a bad impression of Oak Ridge, and takes up some valuable land. The city doesn't get anything." Mayor Pruett adds that this image is one that will be hard to shake.

Mayor Pruett says he is also concerned that many of statements made at the public forum came from people outside of Oak Ridge.

"One of my concerns is that these people came in from Knoxville and talked about Oak Ridge," the mayor explains, adding that these negative comments "create a black cloud over us that we don't deserve."

Councilman Harold Jernigan spoke out at last week's forum saying that if Oak Ridge is chosen as the site, there should be some kind of compensation to the city for accepting the waste. This week he said he didn't have any plans or know any avenues for getting such compensation.

"My main thrust is that Oak Ridge receiving this material is not a benefit to us at all," Jernigan explains. "I don't want to come out as anti-nuclear, but if DOE continues in this area, they must recognize the economic effects on the area. It makes it much harder to get people to move here."

"I just don't see where the benefits are," Jernigan adds.

William R. Bibb, director of energy programs and support division for DOE, says that he was impressed by the level of concerns expressed at the public forum, and explains that all concerns, including the socio-economic aspects, will be addressed in the EIS.

"That has to be addressed," Bibb says of effects of using possible developable land for burial and the image problems that could be created. "But it too premature to say what that would look like. These issues have been raised, and now the burden is on DOE to address them."

Bibb says when the draft EIS is completed, that is where "the rubber meets the road, and there will be another chance for public comment."

Alexander says that any employment gains would come at the beginning of the project, and that it would only be temporary.

"I don't see any opportunity for employment — at least now," Alexander says. "Th details are not yet complete The employment impact wou be minimal at the beginning (the burial process) and th employment would only be tem porary." Once the wastes ar buried, and the fences erecte Alexander explains, the onl manpower needed would be o casional checking of th monitors around the site.

Bechtel National, which ha local offices in Jackson Plaza, the prime contractor for th

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City compared with other repositories

By RICHARD MERRITT

With all the concern that Oak Ridge might become the nuclear waste dump of the country, just how does Oak Ridge stack up against other areas as a repository of low-level nuclear wastes?

In its annual study on the state of nuclear wastes, Oak Ridge National Laboratory reports that in terms of low-level wastes generated by the Department of Energy and the Department of Defense, Oak Ridge stores the second highest amount of wastes in the country.

The ORNL report, which was issued last month and which covers all nuclear wastes as of Dec. 31, 1982, Oak Ridge ranks second behind the Savannah River Plant in Aiken, S.C. in the amount of buried low-level radioactive wastes.

The ORNL report states the following percentages of all low-level radioactive wastes buried in the U.S. that is government generated:

Savannah River — 19.7 percent..

Oak Ridge — 16.9 percent.

Hanford, Wash. — 15.1 percent.

National Lead of Ohio in Fernald — 14.8.

Weldon Springs Quarry, Mo. — 10.7.

Los Alamos National Laboratory — 8.7 percent.

Nevada Test Site — 6.3 pe cent.

Idaho National Engineerin Laboratory — 6.1 percent.

Other — 1.6 percent.

If commercially generate wastes are included in the tot amount of low-level radioactiv wastes buried in the countr Oak Ridge drops to the thi highest. The site with the highe percentage of low-level wast when commercial wastes are a ded is the Barnwell, S.C. sit which only handles commercia ly generated wastes.

The percentages, when com mercial wastes are added to th total amount of buried waste follow:

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The Oak Ridger

36TH YEAR—NO. 39—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, MARCH 14, 1984

Evaluate commercial n-waste site

Public perception and suitability of geologic formations were among concerns voiced by members of the city's Environmental Quality Advisory Board at a Tuesday night work session to review a proposal for the development of a commercial low-level radioactive waste disposal facility.

EQAB is reviewing, at the request of City Council, the environmental impact such a facility could have on Oak Ridge. The Oak Ridge Westinghouse office has proposed to develop and establish a commercial burial facility in Oak Ridge. Although EQAB members did not reach any formal conclusions or recommendations, they did discuss concerns. EQAB will present formal recommendations at the April 23 city council meeting.

In the past six months EQAB has reviewed the potential environmental impact of three different waste disposal operations: Niagara Falls; the Department of Energy's Central Waste Disposal Facility; and the Westinghouse commerical facility.

John Duggan attended Tuesday night's session to share his expertise on the topic. Duggan has been active in waste disposal research at the Y-12 Plant for the past 40 years.

"Waste disposal is technically not too difficult, but economically a situation where people don't want to make an investment," Duggan said.

Necessity, transportation and geology are areas Duggan said should be evaluated. "There is every reason to believe that Westinghouse can do as good a job as can be done," he said. But he emphasized the importance of preliminary engineering, particularly where geology is concerned.

Duggan detailed the storage process, which involves placement of the low-level waste in caissons, burial in trenches, capping with clay top and seeding. "But in Oak Ridge you will always have a wet hole," he said. "Holes will be free of stan-

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ding water, but they will always be damp."

When asked if other areas in the state are more geologically suitable, Duggan replied, "More than half the state is more suitable."

Nathan Landay, EQAB member, expressed concern for public perception of Oak Ridge as a dumpsite. "I don't want Oak Ridge to become known as a dumpsite; I don't want that to happen if I can help it," he said.

This thought was shared by Libby Johnson, EQAB member, who said, "This is likely not going to help our image at all."

Chuck Coutant, EQAB chairman, said there are some who would argue that "we already have environmental problems, so why not bring in a commerical facility and the accountability and income that go with it."

"This is not necessarily my argument," Coutant noted.

Duggan pointed to changing laws that will require states or regions to develop low-level radioactive waste disposal facility to treat waste generated within their boundaries.

The proposed facility would require 180 acres; it has a projected lifespan of 30 years.

"It would not be a terribly objectionable installation," Duggan said. "It doesn't have to be ... It would be no worse than a fertilizer warehouse."

Other EQAB members attending the session were Cyd Ryman, Audrey Schlafke-Stelson, Robert Spore, Shelby Smith-Sanclare; Margaret Terrell; Margaret Elizabeth Terrell.

Sandra Edwards also attended the work session.

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Cal. death

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On June 1, 1970, Beal pleaded guilty in Anderson County Criminal Court to assault with intent to commit first degree murder, an offense then carrying a 3-21 year sentence.

He was arrested Jan. 10, 1970, in connection with the shooting of ex-wife Joyce Beal, who was wounded twice while on duty at an Oak Ridge convenience store, and was listed in satisfactory condition after being admitted to Oak Ridge Hospital.

Beal, then 38 and living at 144 Cambridge Hall, surrendered to police the day after the shooting, according to Oak Ridger files.

After serving approximately two years in prison, he was released on parole in 1972 and moved to California, where he finished serving probation in June 1974.

OR cleanup cost put at $800 million

By RANDELL BECK
Journal Reporter

It will cost Americans about $800 million to clean up Oak Ridge and cut chemical and radioactive discharges from three government plants there, Department of Energy officials said Tuesday.

The estimate, which stunned state officials and environmentalists, also includes several anti-pollution projects the government has begun at the Y-12 weapons plant and Oak Ridge National Laboratory.

"That's mind-boggling," said Gary Davis, attorney for an environmental group suing the energy department for allegedly ignoring laws that control the discharge of chemicals into streams and rivers.

"It shows the result of DOE's philosophy of dump now and pay later," he said.

The numbers are part of a government report furnished to two congressional subcommittees.

Rep. Marilyn Lloyd, D-Tenn., chairman of a subcommittee that held hearings in Oak Ridge last summer, said she was not surprised by the estimate. She said she knew the cost would be high.

"Given the complexity of the cleanup, with specific reference to the type of materials involved and the length of time inadequate dipposal practices have been in existence, an $800 million total cleanup cost is not beyond reason," Lloyd said.

Those costs, the government said, will include:

■ $320 million to be spent by 1988 to reduce discharges from the Y-12 weapons plant, treat waste from the three facilities and build some hazardous waste storage facilities.

■ $130 million in the next five years to correct past mistakes. That will include possible cleanup of mercury-contaminated soil in Oak Ridge along East Fork, Poplar Creek and trying to stop radioactive leaks from burial grounds into area streams and rivers.

■ As much as $300 million beyond 1988 to tackle long-term problems. Those include possible cleanup of contaminated soil near White Oak Lake at Oak Ridge National Laboratory and stopping leaks from the Bear Creek Burial grounds near the Y-12 plant.

In the past year, DOE has been under intense pressure to improve its handling of chemical and radioactive waste. First, there were revelations that 2.5 million pounds of mercury had been lost into streams and the ground.

Later, state and federal officials turned their attention to other forms of pollution — continuing leaks from vast burial grounds for radioactive waste and chemical discharges from the weapons plant.

After congressional hearings in Oak Ridge last July, government officials promised a report that would estimate the expense of coping with contamination at ORNL, the Y-12 plant and Oak Ridge Gaseous Diffusion Plant.

The 125-page report, said Wayne Hibbitts, a DOE special assistant for environmental coordination, is only a rough guess as to the ultimate cost of cleaning up Oak Ridge.

"This document is going to be changing continuously," Hibbitts

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Cleanup

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said. "The more we learn (about environmental problems), that has to be reflected in the revised plan."

That plan estimates the government will spend $70 million during the 1984 fiscal year, which ends Sept. 30, on anti-pollution measures. In 1985, DOE officials said, about $100 million will be spent. In 1986, $80 million; 1987, $90 million; and 1988, $110 million.

Of the three plants, the Y-12 facility would get the most attention. Built during World War II, that plant now produces parts for nuclear warheads. The government wants to devote $220 million to projects at the Y-12 plant, while the laboratory would get $160 million.

Projects at the Oak Ridge Gaseous Diffusion Plant would receive $70 million.

Because many operations in the plant are top-secret — and not subject to state and federal pollution control laws, DOE once claimed — there has been little regulation of what it does with its waste.

Much of that waste still is dumped into the so-called industrial ditch, which turns into East Fork Poplar Creek. The stream winds through the town of Oak Ridge.

Projects either underway or planned, Hibbits said, will reduce chemicals going into the creek. Some projects, he said, would reduce emissions from the unclassified portions of the plant. And, to provide some regulation of secret

Group asks state to get tougher with OR plants

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By TERRY McWILLIAMS
Journal Reporter 3-1-84

An East Tennessee citizens' group isn't satisfied with the way state officials have enforced environmental laws at the Department of Energy's Oak Ridge reservation.

Despite two orders from the state's Department of Health and Environment, members of the Save Our Cumberland Mountains organization believe more can be done to curb pollution from the Y-12 nuclear weapons plant and from Oak Ridge National Laboratory.

Two state agencies that enforce waste disposal laws have scheduled hearings in Nashville next Tuesday and Wednesday to examine the group's case.

SOCM staff member Vicki Quatmann said the group believes the state's Division of Solid Waste Management has virtually overlooked DOE's facilities in enforcing hazardous waste laws.

"The biggest gain we hope to get is a commissioner's order to enforce the hazardous waste law," she said.

Specifically, the citizen's group wants Solid Waste Management to:

- Authorize health studies of residents who live adjacent to the weapons plant.
- Require the Energy Department to immediately stop burying any hazardous waste that hasn't been cleared with a state permit. The group also wants to force DOE to comply with laws regarding closing burial pits and later monitoring.
- Allow the public to comment on proposed clean-up plans that the state agency produces.
- Assess civil penalties on the Department of Energy to reimburse the state for inspectors' salaries, lab expenses and other expenses the state has incurred in enforcing laws at the Oak Ridge plants.

The group also has requested similar actions from the state's water quality division.

SOCM wants water quality officials to stop DOE's "unauthorized" discharges into groundwater and into area streams, force the Energy Department to apply for pollution permits and provide unclassified information — in layman's terms — that the state uses to enforce the laws.

[illegible] position is we want to pro- [illegible] ment as much as [illegible] state envi-

ston said.

"The problems over there (at DOE) are overwhelming. We're talking about 40 years of pollution, and you can't take care of them overnight," she said.

Last September and December, Health and Environment Commissioner James Word issued orders requiring DOE to take action to curb pollution problems at Oak Ridge, including setting timetables. SOCM appealed those orders.

Quatman and Johnston both agreed that a recent pact between the Environmental Protection Agency and DOE may complicate the state's enforcement at federal nuclear installations. Under the agreement, EPA, rather than state inspectors, will regulate DOE plants under rules "comparable" to industry hazardous waste laws.

DOE filed the pact in U.S. District Court last week, using it as a basis to ask Judge Robert Taylor to dismiss a suit by two environmental groups and the state. The parties sued to enforce federal hazardous waste laws.

"I'm not sure how it will affect the hearing, but we'll make the (hearing) board aware that the (pact) was filed," Johnston said. "I think the memorandum will make our job that much more important. EPA has decided it will not enforce our regulations, so it's important for us to go full speed ahead.

"It's put a bigger burden on the state. I don't think we can rely on EPA anymore," she said.

Quatman said the two federal agencies are "formidable powers," but said that until the federal court decides the issue, it is an open question whether the state can continue enforcing hazardous waste laws at facilities such as DOE.

"I'm not sure they (EPA) have any authority to tell us what we can and can't do," Johnston said, citing the state's interim authority from the U.S. to enforce the federal Resource Conservation and Recovery Act, a hazardous waste law.

The state hearing board is composed of representatives from the state departments of health and environment, conservation and agriculture, plus it has members fro the industry, a municipality, an e vironmental group. One membe selected at-large.

They have authority to as criminal penalties of up to $1[illegible] per day, and no limit exists o[illegible]

The law and the Department of Energy

Federal regulations concerning environmental control.

National Environmental Policy Act (NEPA)
Enacted: 1969; requires environmental impact statements be filed when an industry is considering construction and design changes. DOE has complied.

Resource Conservation & Recovery Act (RCRA)
Enacted: 1980; passed in 1976, act controls discharges of hazardous and toxic chemicals; DOE says it is exempt from most of the controls.

Clean Air Act
Enacted: 1970; controls air pollution. DOE claimed exemption for many years, and still has not complied with air emissions.

Clean Water Act
Enacted: 1972; controls chemical pollution through issuance of permits. DOE issued permits in 1975, but routinely violates the permits for chemical discharges.

National Emission Standard for Hazardous Air Pollutants (NESHAP)
Enacted: 1983; regulates radioactive discharges into the air. DOE presently does not comply with act.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
Enacted: 1980; labeled the Superfund, the act required accountings of all waste discharged, and appropriated money for possible cleanup. DOE did not reveal all pollution at Oak Ridge.

State regulations pertaining to Oak Ridge operations.

Water Quality Act
Enacted: 1971; controls chemical discharges into state waters. DOE maintained exemption from regulations, but state now is pressing for DOE compliance.

Tennessee Hazardous Waste Management Act
Enacted: 1980; similar to federal law, regulated discharges of hazardous and toxic chemicals. DOE claimed exemption from the act.

Tennessee Solid Waste Disposal Act
Enacted: 1980; limits dumping of most solid wastes, including radioactive waste, to designated landfills. DOE maintained exemption from portions of law controlling radioactivity.

ns. The environmental monitor- reports, sent annually to Con- ess and the media, rarely eported chemical or radioactive ntamination at Oak Ridge. Even ergy department officials now ncede the reports didn't tell the hole story.

Joe LaGrone, now the energy partment's director of Oak Ridge ints, says some of those monitor- g reports were "defective."

The rosy picture painted by ose reports fooled state officials. was not until 1978, when two tate inspectors entered the weap- ns plant, that the state acted.

That year, Larry Reynolds and rry Watson became the first in- pectors to see the streams on the overnment reservation. They saw ar Creek, the tiny creek that hes toxic chemicals from the apons plant.

Hours later, they returned to ir Knoxville office, shocked at absence of life in the stream.

Reynolds and Watson began sking questions. Each answer led a dozen more questions. They rned of mercury contamination East Fork Poplar Creek.

State officials vowed they uld force EPA to change the Oak dge permit to reflect the massive ounts of chemicals dumped in the streams. And EPA did propose a new permit in 1979. That permit, state officials learned, was as lax as the old one.

State officials flatly rejected it and ordered the energy department to describe chemical waste emptied into streams. Compiling that list took months. David McKinney, area director for the state Department of Health and Environment, remembers the list.

"What we got was garbage, total garbage," McKinney recalls today.

"I think at that point, we were very determined to get what we would require out of private industry," McKinney says.

By that time even EPA, which had given Oak Ridge officials free rein in the past, began pushing the energy department for more information. But energy department officials still resisted.

"It may have been DOE management at that time," Howard Zeller, an EPA assistant regional adminstrator, said. "It was a totally different attitude. You know, (one like), 'Look Buster, don't bug me with your crap about permits. I'm building atomic weapons.'"

But officials at the Department of Energy tell a different story. It was almost impossible, they say, to keep up with changing state and federal pollution standards.

A chemical discharge that isn't a problem today, argues deputy legal counsel James Foutsch, "may be a problem two years or three years from now. Standards change. We've been shooting at a moving target for the last 10 years."

Until recently, that argument carried a lot of weight with state and EPA officials. But that changed. By late 1982, the state began pushing harder, banning fishing and swimming in much of East Fork Poplar Creek.

Only in the past year have operations at Oak Ridge received much attention from regulatory agencies.

"Nobody really said to them . . . 'What you're doing is against the law and you have to stop doing it,'" said state inspector Barry Sulkin. "It's always been debated. But this year we told them, 'You can't do this anymore.'"

Even EPA, which ignored its sister agency for so many years, has changed. After a meeting last spring, Gabriel J. Marciante of the energy department's environmental branch, lamented that EPA and the state would begin speaking with "one voice" on Oak Ridge pollution.

"We can no longer expect EPA to buffer us from the state," Marciante wrote in a memo to other energy department officials.

ceived a copy of the presidential order.

In one margin of Carter's order an energy department official, referring to attempts by some agencies to stop pollution at the Oak Ridge weapons plant, had handwritten: "This could bail us out on Y-12."

The presidential order, in other words, could be used to avoid environmental regulations.

■ ■ ■

The first attempt by Congress to regulate federal facilities like Oak Ridge came in 1970 when it created the Environmental Protection Agency.

EPA immediately asked industrial plants to explain what chemicals they dumped. Then the agency issued a permit limiting discharges of those chemicals.

But EPA didn't do that at Oak Ridge and other federal plants. EPA inspectors, barred from stepping into government property, could only check chemical levels far downstream from the facilities.

Even those tests were inadequate. Inspectors didn't know what hazardous chemicals to look for in the streams.

"You have to recognize the fact we only knew the problems that were told to us. A permit application was submitted by the agency . . . and they signed on the dotted line and stated that they (the chemical discharges) were to their best knowledge accurate. We had no reason to question what was given to us," said Arthur Linton, then director of EPA's federal facilities branch.

Oak Ridge's pollution permit listed only four basic chemicals common to any large industrial operation. Listing other chemicals, the old Atomic Energy Commission told EPA, would compromise national security.

So EPA did not demand an inventory of the chemicals dumped in the streams. Those chemicals — heavy metals like mercury, chromium and cadmium — received virtually no treatment before being dumped in the creeks. Metals do not dissolve in water.

East Fork Poplar Creek grew increasingly polluted.

The energy department was even more successful at avoiding regulation of its methods of dumping hazardous waste. A 1976 law, the Resource Conservation and Recovery Act, had little impact on the disposal methods at the Oak Ridge plants.

EPA also administered that law. But Oak Ridge officials argued the plants were exempt from its provisions. The Atomic Energy Act of 1954, officials said, exempted nuclear materials from regulation by any other law. That, the energy department has said, also includes any toxic chemical that mixes with those nuclear materials.

The energy department still relies on the old dilution theory.

"Dilution factors," headquarters wrote Oak Ridge officials in 1976, "can render a harmful quantity (of chemicals) innocuous."

EPA didn't argue.

That agency's lack of aggression in fighting the energy department, many officials now say, symbolizes EPA's decision to overlook pollution at government plants like Oak Ridge.

Cleaning up government plants "just wasn't our priority," said Paul Traina, former EPA enforcement director. "We went out to get the private sector and we did. That lack of attention has come back to haunt us."

■ ■ ■

Until last year, Tennessee's efforts to curb Oak Ridge pollution failed miserably.

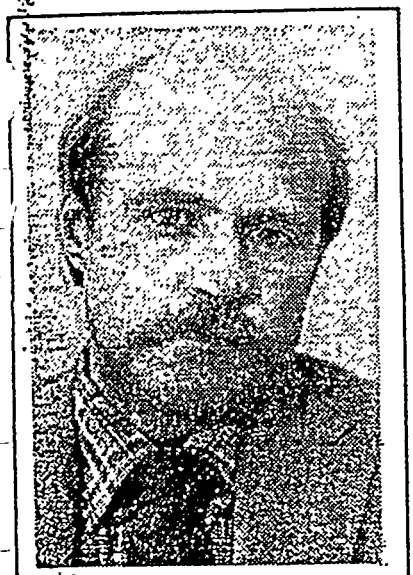
There was one big reason: the power of the federal government. James Word, Tennessee health and environment commissioner, explains:

"Even in the early days of water quality (control), state bureaucrats were a little bit afraid to go into Oak Ridge. We were told, 'Don't worry about that. The federal government issues (pollution) permits and they'll worry about it.'

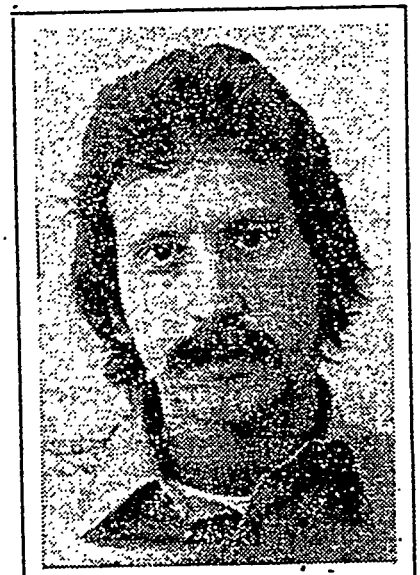
"We were told at one point that they (Oak Ridge plants) had a national security exemption. It turns out we see no evidence of a national security exemption. . . . But state people were reluctant to go out there because of questions of legal jurisdiction," Word said.

As recently as 1967, state officials didn't realize there were pollution problems at Oak Ridge. They couldn't find out without the help of the federal government.

Public reports issued by the Atomic Energy Commission and later agencies revealed few prob-



When state officials ordered the Energy Department to describe chemical waste being emptied into the streams, 'What we got was garbage, total garbage. . . . I think at that point, we were very determined to get what we would require out of private industry.'
David McKinney



Nobody really said to them . . . 'What you're doing is against the law and you have to stop doing it.' It's always been debated. But this year we told them, 'You can't do this anymore.'
State inspector Barry Sulkin

While Congress and DOE debate cleanup costs, Oak Ridge neighbors have to pay

By TERRY McWILLIAMS
Journal Reporter 12-2-83

If a private factory fails to stop releasing toxic wastes into streams or into the air, the U.S. government can take drastic action.

It can close down the plant.

But at the Department of Energy's Oak Ridge operations, where discarded chemicals have polluted streams and groundwater, halting the manufacture of nuclear weapons isn't an option.

Production must go on.

So, in response to pressure from regulators, DOE has at least two options:

It can request or even assert exemptions from environmental laws.

Or it can ask Congress for money to solve the problems.

DOE has done both.

"We're constantly competing for dollars," says DOE attorney James Foutsch. "The agency has a budget, you compete for dollars here. The president has a budget, where you have to fit into. Congress has got its ideas of what it wants to do. . .And you can drop off anywhere along the way."

The shortest time to get new money takes three years.

If DOE doesn't get the money, it has a good excuse for regulators: we tried.

In 1980, Oak Ridge DOE Manager Robert J. Hart asked the government to fund an important water pollution control project for Oak Ridge National Laboratory. He told them if Oak Ridge didn't get the money, there could be drastic consequences — particularly violations of federal and state law, with possible criminal prosecution and severe civil penalties.

DOE rejected the project, a 1981 internal memo explains, because "the Reagan Administration was not interested in making federal expenditures just to satisfy more rigid environmental standards."

Hart vehemently protested the budget cut, primarily because one of his defenses was being yanked away.

"Our argument (to regulators) has been that, if Congress does not appropriate funds or reduces funds, that is beyond control of the agency and the agency should not be held responsible. This argument has been successful in the past," Hart said in another 1981 memo.

Some officials suggest that DOE hasn't lobbied hard enough for pollution control money.

"It's kind of a Catch-22 situation," says Larry Reynolds, a former state inspector. "If they didn't comply with their (pollution) permits, they'd look bad. But they'd do anything from looking bad because of the publicity, among other things. But without that bad publicity, they couldn't get money to correct the problem."

Energy department officials contend they've tried to get money for environmental projects — even going as far as showing superiors pictures of white and yellow goo coating the bottom of Bear Creek.

Howard Zeller of the Environmental Protection Agency, one of DOE's regulators, says there's one big reason why Oak Ridge doesn't get as much money as it needs for environmental projects.

The Armed Services Committee, he says, doesn't want to divert money from weapons production.

However, the committee isn't the only one responsible for funding Oak Ridge's programs. There are several.

A congressional report suggests that because of that arrangement, Oak Ridge may still find it difficult to obtain money for environmental projects. This is despite the report's recommendation that Congress should be more sensitive to Oak Ridge's pollution problems.

"You know who's responsible for the problem. It's who is going to pay for the solution," says Paul Traina, director of EPA's water management division.

"It's the taxpayers and you can't expect anyone to have access to the taxpayer's money without going through Congress. These (Oak Ridge problems) are multi-million dollar problems. . .it's frustrating, to say the least."

Long, costly cleanup begins

Contamination problem pinpointed, but now it must be solved

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By TERRY McWILLIAMS
and RANDELL BECK
Journal Reporters

A.K. Bissell, amiable Oak Ridge statesman, institution in the town he proudly calls the Atomic City, senses change.

Disturbed by the realization that 40 years of building nuclear weapons came with a high price — contaminated streams and groundwater — the former mayor now believes the federal government must take the lead in correcting mistakes of the past.

"The problems we are now recognizing will be straightened up in proper fashion," said Bissell, who came to Oak Ridge in 1943 to help build a bomb that ended World War II. "I think we made some mistakes. So, let's get going and get them straightened up. It's time.

"I think there's a new day dawning at Oak Ridge."

There are signs that confirm Bissell's belief. After 40 years of virtual isolation, which allowed the government to dump, leak and spill a variety of dangerous chemicals into area streams, change is coming.

■ All around Oak Ridge, government workers are testing soil for the presence of more than 100 hazardous substances.

■ Experts are analyzing area groundwater to determine the extent of contamination, and how far it has traveled.

■ The state has ordered the Y-12 weapons plant to reduce much of its pollution. For example, the federal government is closing four waste ponds on the west edge of the plant.

■ For the first time, Congress has shown a genuine interest in the Oak Ridge environment. A congressional report has recommended sweeping changes in the energy department's management practices.

■ The inspector general of the Department of Energy is investigating those practices, why most environmental laws were ignored, why pollution continued unchecked for years. The U.S. Justice Department then will determine whether government officials should be prosecuted.

Many of those tasks are just beginning. Today, there may be more questions than answers about the long-term consequences of Oak Ridge pollution. Many state and federal officials face the future with uncertainty.

But they agree on one point: there is no immediate danger to the people of Oak Ridge.

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At the same time, high levels of mercury have been found near two Oak Ridge schools. Even the soil near City Hall is contaminated.

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Many former weapons plant workers fear they were exposed to dangerously high levels of mercury in the 1950s and 1960s. Now, some workers believe they suffer from

See Oak Ridge, Page A7

At any cost

12/2/83

The spoiling of Oak Ridge/Part 5

OR contamination task force struggles with cleanup question

By LAURA SIMMONS
Journal Reporter

CHATTANOOGA — Two years after the Department of Energy revealed that 2.4 million pounds of mercury have been released into the Oak Ridge environment, an interagency task force is still grappling with the question of how much risk is posed to the public.

It will be at least another year before the group recommends a plan for cleaning up the floodplain of East Fork Poplar Creek, where mercury and other pollutants have settled into the soil.

"If a huge cleanup effort is required, it's going to cost a lot more than $100 million," said Wayne Hibbitts, DOE environmental program manager.

And, if that figure is not mind-boggling enough, the DOE has estimated it will cost almost $800 million for overall cleanup of hazardous waste sites and new treatment equipment to prevent future releases of pollutants in Oak Ridge.

"We would respond very fast if it were (an immediate) public health threat," said Arthur Linton, who oversees Environmental Protection Agency activities at federal facilities in the Southeast.

"It's a long-term thing. There's no short-term hazard that we could see. Nobody's in the hospital, nobody's dying in the street," Linton said.

Linton made the remarks at a task force meeting Wednesday and Thursday in Chattanooga.

The task force is composed of representatives from the EPA, DOE, Tennessee Valley Authority, Oak Ridge National Laboratory, U.S. Geological Survey, Centers for Disease Control, Tennessee Department of Health and Environment, City of Oak Ridge and Oak Ridge Associated Universities.

Its purpose is to identify the off-site problems caused by mercury and other hazardous materials carried from the Y-12 nuclear weapons plant by East Fork Poplar Creek during a 30-year period.

Until the cleanup plan is launched, the agencies involved will have to rely on stopgap, interim measures to protect public health.

So far, these have been limited mainly to posting warning signs on the creek and removing mercury-laden soil that ended up at the Oak Ridge Civic Center and two schoolyards.

The floodplain goes through the heart of the Oak Ridge business district. Each time a new business or development is built there, contaminated soil is stirred up, compounding the environmental problems.

But until a definite health threat is identified with the building activities, the city is hard-pressed to give developers a reason to stop developing, said Mike Walker, city budget and research director.

Cleanup options range from "doing nothing" to wholesale rerouting of the stream to removing the contaminated soil.

"Doing nothing" means "letting nature take its course," said Bruce Brye, TVA environmental engineer.

The environment is a "dynamic system" that has ways to clean itself up, Brye explained.

But the task force may well decide that will take too long and recommend other actions.

Another possibility is "soil fusion" — zapping the soil with electricity to form a glass-like sheet that would withstand erosion.

In the meantime, several different soil, water and fish sampling programs go on at a cost of about $2 million a year. The task force will soon launch a groundwater sam-

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pling program that should answer a lot of questions about which cleanup method is safest.

After evaluating the test results of hundreds of fish and sediment samples analyzed by TVA, researchers at Oak Ridge National Laboratory have identified seven substances in the floodplain that the task force should focus on as a potential threat to public health.

In addition to mercury, the substances are arsenic, beryllium, thalium, PCBs, aldrin and one radionuclide, cesium-137.

Curtis Travis, a risk assessment specialist at Oak Ridge National Laboratory, said there also are 37 organic compounds — known to cause cancer — that can't be detected but may be causing a problem anyway.

"They potentially may be causing a health problem but the detection level is such that we can't determine if they are there," Travis said. "That is an issue that needs to be addressed."

"Now you have to put it in some sort of perspective," task force chairman David McKinney said, referring to the sampling information presented at the meeting. "Are these levels higher than elsewhere in the region? Are these levels higher than elsewhere in the U.S.? How much is it going to cost to clean it up?"

Long, costly cleanup begins

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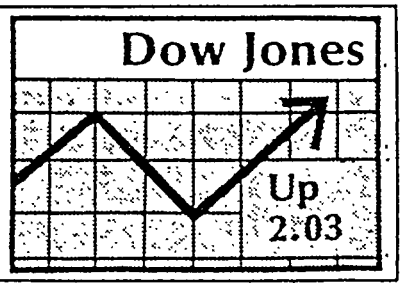

Legal order to force cleanup of OR waste

By RANDELL BECK
Journal Energy Reporter

NASHVILLE — The state commissioner of health next week will sign a ground-breaking order that will lead the way toward cleanup of toxic wastes at Oak Ridge.

Commissioner Jim Word said the order, which would go several steps farther than the current "gentlemen's agreement" between the Department of Energy and the state, would force the cleanup of heavy pollution in Oak Ridge.

Word said the order also will tell the public that his office is willing to take DOE to court to stop pollution at the three federal facilities at Oak Ridge.

The legal order "goes beyond a handshake and agreement," Word said. "It's one thing to think (DOE's) motives are good. It's another for me to assure the public that I have exercised the legal options given me under the law...."

Word said he must make sure the cleanup at Oak Ridge "is not shortcutted to save (DOE) money or in order to be advantageous to (DOE)."

State efforts to clean up Oak Ridge recently began after revelations that about 2.5 million pounds of mercury had been spilled from the Y-12 weapons parts plant. Most of those spills had been kept confidential until DOE last May released a report detailing six major spills.

State and federal officials had barely begun to cope with that problem when they also learned that many other hazardous chemicals continue to leak into area streams, particularly the East Fork of Poplar Creek, Bear Creek and White Oak Creek.

A memorandum of understanding among the state, DOE and the Environmental Protection Agency, which for years had been powerless to stop emissions at Oak Ridge, set up a schedule for halting the large discharges.

The memo, which has no legal basis, says that DOE will no longer use the infamous S-3 ponds at the weapons parts plant. The settling ponds merely caught waste from the plant, and the East Fork of Poplar Creek carried it further downstream where it emptied into the Clinch River.

Although DOE has kept to the schedule in the memo, Word is concerned. He said that the informal agreement carries no weight. The public, he says, should be assured he is trying his best to force DOE to reduce waste discharges.

The state legislature gave Word the authority to issue a commissioner's order. If the order were violated, he said, he could go to court to make DOE comply.

"I frankly am tired of just shaking hands and reaching gentlemen's agreements," Word said. "I think the legislature gave me that law to use, and I'll use it....If they don't want me to use, they can change the law."

If DOE violates terms of the new order, Word said, "we're going to Chancery Court."

DOE officials have said they prefer that Word not issue such an order. The current memorandum is sufficient, those officials have argued, to make sure pollution at Oak Ridge is halted.

Although Word was not specific on the terms of the order — department attorney Bill Barrick will bring the finished product to Word early next week for his signature — officials said it likely will address the need for a waste treatment plant at the weapons parts plant.

DOE began planning for the facility more than 10 years ago. But for mostly financial reasons, the plant never was built. Cleaning up the S-3 ponds is the first step toward treating waste at a central treatment facility. The plant would remove much of the harmful waste before it is discharged to area creeks.

The legal order, Word said, will convert the current memorandum of understanding "into something that says this is what the problem is. We think this is the technical solution. This is when you'll do it."

By signing such an order, he said, "I will have met my responsibility to the public."

Since efforts began earlier this year to clean up Oak Ridge, Word said, DOE has cooperated with the state and EPA. Just how far that cooperation will go is uncertain, however.

But in case DOE backs out on the order, he warned, the state can throw a "bunch of really hard law on them...If they aren't responsive, I am inclined to do that."

Tests show mercury remains toxic in downtown Oak Ridge

OAK RIDGE — Additional soil samples taken from a heavily overgrown area near downtown Oak Ridge continue to show mercury contamination at levels higher than the state guideline, officials said Sunday.

In 21 samples taken for a government task force, researchers found 15 of those near the Bruner Shopping Center exceeded the guideline, said Wayne Hibbitts, a Department of Energy environmental official.

The highest reading was 1,400 parts of mercury per million parts of soil, far exceeding the 12 parts per million (ppm) state guideline, results show. Eight samples show concentrations between 93 and 320 ppm, while another six are in the 24 to 75 ppm range.

That site, near East Fork Poplar Creek, has registered some of the highest mercury concentrations in soil outside the Department of Energy reservation. During the 1950s and 1960s, mercury used in building nuclear weapons at DOE's Y-12 plant leaked into the water, drifted downstream and accumulated in the floodplain. The plant drastically reduced its use of the silvery metal in 1966.

A government task force is collecting data to assess the impact of those mercury releases, and recently, workers began removing mercury-contaminated soil at the Oak Ridge Civic Center because of concerns about contamination.

Samples taken in September, the latest available, show that the task force has generally succeeded in removing soil with concentrations higher than 100 ppm and reducing the level to less than 10 ppm. Hibbitts said workers returned and "cleaned up" the areas where the concentrations were higher than allowed.

Four of 200 state test participants from OR show high mercury levels

Journal State Desk

OAK RIDGE — Only four of 200 people who participated in an Oak Ridge health survey last year showed higher than normal levels of mercury, figures released Thursday show.

State epidemiologist Carol Cothron said tests conducted by the National Centers for Disease Control found that hair samples from two people and urine samples from two others contained levels slightly higher than normal.

"All they had to do was come into contact with mercury. It doesn't have to be from the environment," Cothron said.

The state began testing Oak Ridge residents last year after it was learned that several thousand pounds of elemental mercury had escaped from a nuclear weapons plant during the 1950s and 1960s. Mercury contaminated East Fork Poplar Creek and its floodplains.

State officials were concerned about health effects because some residents caught and ate fish from the contaminated stream, while others may have eaten vegetables grown in floodplain gardens.

"They (the preliminary results) really haven't shown us any problem there. That's what we expected in the beginning," said Cothron. "It's not like people have spent time on the creek bank or have been sucking on their tennis shoes."

Fishing and swimming have been banned from the creek.

Results from the survey were compared to a control group, or people who had no known exposure to mercury, Cothron said.

Officials have said it would be difficult to determine long-term health effects from the analyses of hair and urine, since urine only retains mercury for 60 days, while hair may hold the element for as long as a year.

She said the state Division of Environmental Epidemiology would analyze answers to 1,000 health questionnaires and data generated by the 200 hair and urine samples to try to answer questions about the health of Oak Ridge residents.

[redacted] Spending in 3 race

★ Journal Legals 2J

SITUATED, in District Eight of Knox County, Tennessee, and being more bounded and described follows:
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BEING the same conveyed to Iris D yard by Quit C from Billy Boyd dated August 30, recorded in Wor 1518, page 594, K County Register's
The above property will be to any and all r restrictions, eas building setback any prior or s judgments or E
The proceeds o be applied in with the terms of the above n Trust. Sold s made upon th
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Should fail to comp of the bid then the s the option second hi next highe the buyer.
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No mercury problem for widening of Illinois Ave.

The property involved in the widening of Illinois Avenue between Oak Ridge Turnpike and West Outer Drive has no problems with mercury contamination, so the work should be able to proceed, according to the most recent survey by the Department of Energy.

DOE reports monthly to a number of state and federal agencies on sampling for mercury levels throughout the city, following the disclosure in 1983 that 2.4 million pounds of mercury cannot be accounted for from operations at the Y-12 Plant during the 1950s and 1960s.

According to the March report, 27 samples were taken along Illinois Avenue between the Turnpike and West Outer Drive, and all were under the state guidelines. Normal ranges of mercury in soil are .01 to 4.7 parts per million, and the Illinois Avenue samples ranged from .02 to .22 parts per million.

However, sampling for the preliminary survey of the East Fork Poplar Creek floodplain from the creek to the tennis courts at Jefferson Avenue, shows 111 of the 163 samples exceeding the state guidelines of 12 ppm. The range of mercury concentrations in the soil samples is .12 to 110 ppm.

Also, 23 soil samples were taken at a private residence on Goldengate Lane, with 22 exceeding the state guidelines. The range for the mercury concentrations in the samples is 1.7 to 69 ppm. The area is atop a small ridge, according to the DOE report, so "it appears that the contaminated soil was imported, possibly from the floodplain, by persons unknown."

Four samples were collected from a second private residence on Chestnut Hill Road, none of which exceeded the state guidelines. Those samples ranged from .05 to .09 ppm.

Sampling is continuing, and DOE, through its contractor, Oak Ridge Associated Universities, will sample soil from any area of the city if residents believe mercury-contaminated soil is located there.

Fish kills impede East Fork cleanup

8/1/

y FRANK MUNGER
lews-Sentinel staff writer

OAK RIDGE — Some people undoubtedly question the uproar about recent fish kills in the East Fork of Poplar Creek, considering its already notorious reputation as a polluted body of water.

Did anyone expect fish and other aquatic creatures living in the creek to be healthy, swimming around in water contaminated by mercury and a hundred other pollutants? Is it a surprise that fish should die in such an environment? Who cares if they do?

For scientists studying the creek — and there are many — those questions do not address the East Fork's central role in this town's pollution cleanup efforts.

More than anything else at this time, the creek is a barometer for environmental progress at the Y-12 nuclear weapons plant, historically a giant offender.

The creek was posted as a health hazard more than two years ago. Signs warn residents not to fish or swim in its shallow waters.

analysis

Y-12 is the reason for the East Fork's bad name. The creek originates as a drainage ditch through the plant site, before leaving the government reservation and flowing several miles through the city. Over the past 40 years, tons of toxic and radioactive discharges from the plant have entered the creek.

Millions of dollars are being spent to slow or halt the plant's polluting influence, and a new problem could cloud that effort. Y-12 officials now have a protective interest in the creek's condition, because it is critical to the plant receiving licenses for its discharges.

But it appears that Y-12, which manufactures nuclear warhead parts from uranium, was not the cause of the most recent problem, which claimed 2,000 or more fish — a significant portion of the creek's population.

It is more likely that someone who lives or works alongside the creek dumped something into the water. It may have been runoff from the use of a herbicide, as some have speculated, or any number of other possibilities.

Regardless of who perpetrated the act, whether it was accidental or purposeful, the damage was significant, and it may seriously harm ongoing monitoring programs at the creek.

Jim Loar, an aquatic ecologist at Oak Ridge National Laboratory, knows the East Fork perhaps better than anyone. He is involved in long-term monitoring programs to assess the Y-12 plant's impact on the creek.

One project involves tagging fish so researchers can determine growth patterns and localized movements. Fish are collected at a number of sites along the creek, then scientists compare the East Fork fish with those living in other streams where pollution is not considered a problem.

"One of the effects of pollution discharges is a reduction in growth," Loar said.

At one sampling location, the fish population appeared to be virtually wiped out, and it will take time to recover — maybe a year or more.

The tagging program was started only in May, however, and some of the work can be salvaged by restocking certain areas of the creek and retagging the fish. If a fish kill of this magnitude occurs two or three years down the road — when critical information becomes available — the effects could be devastating.

As a private citizen, Loar said he is offended by an act that kills thousands of fish and jeopardizes tax dollars spent to protect the environment. As a scientist, Loar said he wants to find out what causes the problems so they can be prevented.

Others are looking to a day, perhaps far in the future, when the East Fork gets a clean bill of health.

"We'd like to see the (warning) signs removed and all the contamination cleaned up," said Mike Walker, a city official who is pressing to have pollution violators prosecuted.

"This fish kill is something we don't need. It's just so blatant."

Report says spill was not wrong but DOE coverup was

By CATHERINE FOSTER

The Department of Energy didn't do anything wrong when it allowed thousands of gallons of mercury to spill into East Fork Poplar Creek from operations at the Y-12 Plant during the 1950s and early 1960s, according to a report by DOE's Inspector General.

But they did do wrong beginning in the late 1960s, when scientists discovered that elemental mercury can convert to methyl mercury, and become a health hazard, and DOE — then still the Atomic Energy Commission — kept quiet about it until a major revelation in 1983 that 2.4 million pounds of mercury was lost to the environment, including creeks and ground.

The only reason for keeping the information secret was not on national security grounds, as has been claimed, the report says, but because "the issue was sensitive from a public information standpoint."

The Inspector General's report, in preparation for months and withheld for months more, singles out Jerry Wing, former DOE environmental chief, as responsible for the decision to cover up the information. The Inspector General's office turned its report over to the Department of Justice, which declined to prosecute, and the report was finally made public this week.

The report suggests that some form of administrative action might be taken against Wing; a three-man panel is studying the report, and will make a recommendation to DOE manager Joe La Grone.

Neither DOE nor its contractor at the time, Union Carbide Nuclear Division, made any efforts to determine the extent of mercury contamination in East Fork Poplar Creek until 1982; after that report, state officials closed the creek to swimming and fishing.

The report ignores Wing's superiors during that time — Vince D'Amico, assistant manager for safety and environmental, now retired; James H. Hill, deputy manager, now retired; and Robert J. Hart, DOE manager for 11 years, now retired, and does not suggest any action against any of them.

(Continued on Page 9 No. 2)

— Mercury report —

— From Page One

Wing is quoted as saying:

In regard to information that :e were operational releases of ercury, it has never been of .ramount importance to me what operational discharges to the ek might have been. The impor- nt information is what are the ercury concentrations in the sed- nt potentially available to the d pathway to man. Therefore, operational releases of mercury to East Fork was of little or not portance to me and is why I er advised TVA or the state out it."

Win has declined comment until e three-man panel completes its ort to La Grone.

he Inspector General's report ys:

"Regarding who at (Oak Ridge erations) was responsible for hholding information from the gnizant agencies — information hich would have been considered elevant for making decisions and rendering opinions on the mer- y contamination problems — r. Wing admitted that he was esponsible. According to Mr. Wing, never was told what mercury in- rmation should or should not have en released to the cognizant gencies. Mr. Wing said, however, at his superiors could have initi- d additional efforts or overruled decisions at any time, which, in is opinion, indicated agreement ith his efforts.

"Inasmuch as the investigation veloped information which in- icated that (Oak Ridge Opera- ons) management was knowl- geable of the 2.4 million pounds of accounted for mercury, the rect release of nearly one-half illion pounds of mercury into East ork Poplar Creek, and the 1977 lwood report which found the Oak dge area waterways to be con- aminated with mercury, (Oak idge Operations) management as free to make its own decisions what should be done. Even ough Mr. Wing informed anagement in 1977 that followup esearch was underway which ould lead to a better under- anding of the mercury con- amination problem, no manage- ent official apparently questioned hether or not the stated research as being performed. Indeed, the vestigation disclosed what ap- eared to be a lack of interest on he part of (Oak Ridge Operations) anagement about the potential ealth hazards of the mercury eleases. Since management was pparently worried about public pinion, Mr. Wing's posture that here was no reason for concern ppears to have been received ithout debate."

The report also castigates former ashington, D.C. "elements" of the gency and its predecessors. "In- estigation disclosed that although mercury contamination problem."

Local DOE officials also apparently failed to notify DOE's national Office of Environmental Compliance of the releases, or to respond to a request from headquarters for information on releases relating to Superfund legislation.

"In explanation, Mr. Wing related that he never thought about reporting those mercury releases because he never viewed the mercury released in the creek as requiring reporting."

The Inspector General's report also charges that erroneous information was included in a 1982 environmental assessment of Y-12, which showed amounts of mercury in East Fork sediment as six times less than actually present. "Mr. Wing, whose division was responsible for overseeing the production of the report, disclaimed any knowledge of the mistake and stated that he and his staff, as well as the contractor's staff that performed the task, must have inadvertently overlooked the discrepancies." The report was withdrawn by Joe La Grone, current DOE manager, in October 1983.

The report also names Herschel Hickman, assistant manager for defense programs, now retired, as being aware that the figures in the 1982 report were wrong; but it does not suggest that Hickman was guilty of any wrongdoing.

Also mentioned in the report, but not charged with wrongdoing, were:

• Chester Richmond, assistant director of Oak Ridge National Laboratory, who "is responsible for (Carbide, now Martin Marietta) biomedical and environmental research, (and) told the (Inspector General's investigator) that he made no further attempts to pursue the matter" after the 1977 Elwood report. "Evidence developed indicated that Dr. Richmond apparently made no determined effort to accomplish further study."

• J.L. Liverman, director of the division of biomedical and environmental research in the Washington office of what was then the Energy Research and Development Administration; F.P. Baronowski, director of ERDA's division of production and materials management; and Major Gen. J.K. Bratton, director of ERDA's division of military application, all of whom were given in 1976 information on the mercury releases. "Investigation disclosed, however, that the mercury problem apparently was not a matter of specific concern by high level ERDA and (Oak Ridge Operations) officials since there were no known discussions

The report also castigates former Washington, D.C. "elements" of the agency and its predecessors. "Investigation disclosed that, although the then senior headquarters officials received copies of a 1975 report identifying numerous waste problems and mercury contamination at (Oak Ridge Operations), there was no known effort to monitor the problem. The 1975 report stated that 'commercial and sport fishing should be prohibited because of mercury bioaccumulation.' However, those headquarters officials apparently failed to ensure that the appropriate measures were taken."

Despite the involvement of others, the report singles out Wing, who is now in the technical services division of DOE, because he made "the decision not to inform the cognizant agencies about the release of mercury by Y-12 directly into East Fork Poplar Creek.... Mr. Wing advised ... that he did not consider the known operational releases important. He told the (Inspector General's investigators) that only the levels of mercury detected in the waterways were important, and he professed this to be his rationale for not disclosing the known operational releases to the state and (Tennessee Valley Authority)."

Because the mercury was used as part of the weapons program — DOE officials still won't disclose how much mercury was at the Y-12 Plant during the time it was used in the manufacture of lithium deuteride, a fuel element in weapons — decisions on revealing to the public or other agencies was considered sensitive, the report says. In fact, the disclosure of the amount in 1983 came only after months of wrangling within DOE to determine what information could be released.

But the Inspector General's report points out that some of those releases were made public at the time of the larger spills.

State and TVA officials, contacted by the Inspector General's office, "took exception to Wing's opinion that information on the known operational mercury releases was not germane. Both agencies state that this information was material and that failure to disclose this and other available information distorted the true significance of the

by high level ERDA and (Oak Ridge Operations) officials since there were no known discussions about this report's findings of mercury contamination."

- Charles Keller, former assistant manager for operations during the mid-1970s, who was reportedly "knowledgeable" about the mercury contamination.

- Several people in the local DOE office, who were aware of Wing's decision to classify the critical 1977 Elwood report as "business confidential," limiting its distribution. They are J.K. Alexander, Wing's assistant; W.H. Travis, director of the safety and environmental control division; H.D. Fletcher, director of uranium enrichment operations; Hickman; J.T. Foutch, DOE attorney who now holds Hickman's old job; Keller, and J.T. Alexander of DOE's information office.

Preliminary findings show no health risk for Oak Ridge residents tested for mercury

The Associated Press

OAK RIDGE, Tenn. — Area residents who were tested for mercury contamination probably face no health risks from the substance, a preliminary study shows, but a final report is not due until September.

It will be up to scientists at the Centers for Disease Control in Atlanta who helped conduct the study to decide whether there is a health risk from mercury, said Patrick Turri of the state Department of Health and Environment.

"From a layman's standpoint, we don't see a significant difference between the body burdens of mercury in people of the area tested and that of persons (outside the area)," said Turri, director of the environment and epidemiology office.

A "body burden" is the normal amount of mercury a person has in his body, he said.

The CDC scientists' conclusions are expected in September, Turri said.

"From a scientific standpoint, it would be premature to say there definitely are no significant differences (between persons tested and others)," he said. "We're still waiting."

The study was prompted by a 1983 report by the U.S. Department of Energy that said about 2.4 million pounds of mercury could not be accounted for at the Y-12 nuclear weapons components plant in Oak Ridge.

The report, written in 1977 and declassified six years later, said the mercury was lost in spills, leaks and mishandling between 1950 and 1977.

The report also said about 450,000 pounds of mercury were released into the East Fork of Poplar Creek, which flows from the plant through Oak Ridge, during the 1950-1977 period.

Last summer, human hair and urine samples from 180 people were obtained for analysis, as well as soil samples from the Poplar Creek area, Turri said.

Be wary of livers . . . in turtles

from staff reports

OAK RIDGE — Don't eat Oak Ridge turtle livers.

That's the word from the Centers for Disease Control in Atlanta, based on analysis of mercury in Oak Ridge turtle samples.

Of course, not many folks eat turtles anyway, and those who do don't usually eat the livers. But because of the high levels of mercury found in turtles here, especially in the liver, Oak Ridgers are being told to refrain from sampling the four-legged delicacies.

"Muscle is used in turtle recipes, but I have no information on the consumption of turtle liver," wrote Dr. Diane Rowley, a CDC physician, in a letter to Pat Turri of the state Department of Health and Environment.

Rowley added:

"I think it would be useful to advise residents of Oak Ridge of the mercury levels found in turtles and that consumption of turtle muscle probably does not represent a significant health risk, but consumption of other turtle organs may pose a risk to human health."

There is one other part of the story, according to Carol Knapp-Ayers, a spokesman for the Department of Energy, which is sponsoring the mercury studies in fish and other local creatures.

Knapp-Ayers said the samples analyzed are from box turtles, which crawl around the land near the contaminated East Fork Poplar Creek. And, she added,"They're inedible. I guess this must just be a precautionary thing."

Mercury cleanup papers to be filed

By LAURA SIMMONS
Journal Reporter

OAK RIDGE — Two years after admitting that massive amounts of mercury were released into the Oak Ridge environment, the Department of Energy will soon file initial paperwork necessary to begin cleanup.

Before the cleanup can begin, costing as much as $400 million, the DOE will probably have to prepare an environmental impact statement (EIS) — a lengthy and expensive process in itself.

"It's a very big step," DOE environmental coordinator Wayne Hibbitts said.

The EIS could take 18 months to prepare and cost up to $1.5 million, he said.

DOE will hire a contractor to prepare the document, Hibbitts added.

At a meeting last Tuesday, an interagency task force subcommittee recommended that Hibbitts file the internal paperwork necessary for DOE to authorize the EIS.

"The task force will be winding up its period of study and recommendations by the fall of 1986," task force chairman David McKinney said.

"We'd like the EIS to begin as soon as possible," he said.

The task force is made up of representatives from state and federal environmental and public health agencies.

McKinney, of the Tennessee division of water management, said DOE will probably have to prepare the document, required by the National Environmental Policy Act, to meet the department's internal legal requirements.

Enviromental Protection Agency officials, however, have indicated that EPA may not require the EIS because the work being done by the interagency task force satisfies NEPA requirements, McKinney said.

Released from DOE's Y-12 weapons plant, the mercury is found in the floodplain of East Fork Poplar Creek. The contaminated area includes Oak Ridge business and residential areas.

Cleanup options include removing the soil and disposing of it elsewhere, covering it up, treating it chemically in place, or leaving it alone and letting the toxic chemical break down naturally, Hibbitts said.

The Tennessee Valley Authority has estimated that as many as 4 million cubic feet of contaminated soil may have to be removed, at a cost of $50 to $100 per cubic foot.

DOE

From Page A1

by Anderson County, annual revenues would total $4 million, Bolling said. All the payments made to the county by DOE since 1943 "when put together do not equal one year of what the taxes could be."

Yager said property tax revenues from the two plants in Roane County would total more than $9 million a year. "Because the federal government does not pay us taxes, we suffer a serious loss of revenue. And worse, we are subject to the whims of the DOE hierarchy. They can pull the rug out from under us. Lack of a tax base gives us a lack of continuity."

Because these major industries are not paying taxes, "our tax rate has to be higher compared to other counties," said Bolling. "We are the third highest in the state. That makes us less competitive for attracting new

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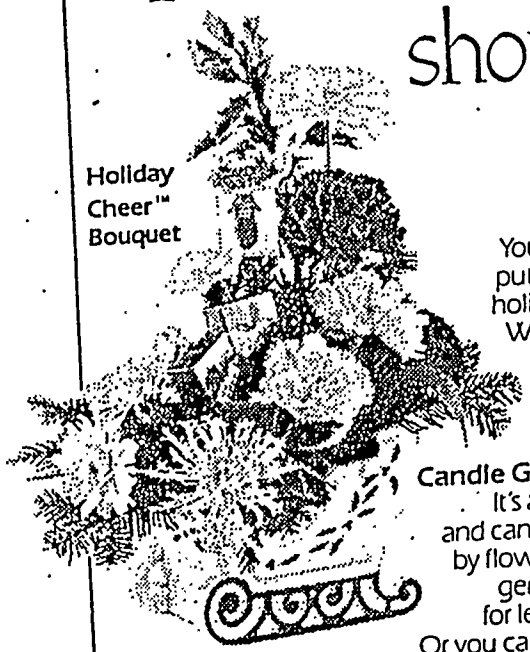

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Car

To Knox Journal series —

A sportsman's response

Editor's note — Evan Means, outdoor columnist for The Oak Ridger since 1949 and prominent in state and national sportsmen's and conservation circles, retired from the Y-12 Plant in 1977. He had been with Y-12 since 1945 as an electrical supervisor. He writes here some of his reactions to the Knoxville Journal's series of articles on pollution in Oak Ridge published last week. Specifically, he reacts to the Journal's reports of deformed fish in local waters, the deformation attributed to pollution from Y-12 and Oak Ridge National Laboratory waste handling practices or lack thereof.

MEANS

By EVAN MEANS

The Knoxville Journal reporters who wrote the series (last week) on Oak Ridge have revised local geography, routing the East Fork into Melton Hill Lake. Neither the East Fork nor the infamous White Oak Lake empty into Melton Hill.

The East Fork runs eastward behind Y-12, then turns to the west after passing through the Scarboro Road gap near Dean Stallings Ford. It parallels Oak Ridge Turnpike through the Oak Ridge Sportsman Association grounds and crosses the Turnpike about a mile west of the Country Club entrance.

Bear Creek, which drains some of the western part of Y-12, has been a popular source of bait minnows for local fishermen since Oak Ridge was established in 1943. I believe I seined snail darters there in July 1945. Bear Creek joins the East Fork below the junction of Route 95 and the

(Continued on Page 7 No. 3)

High mercury in Center area

Some of the highest levels of mercury discovered so far in soil in the city have been found near the Municipal Building and the Civic Center as the Department of Energy continues its monitoring program.

Of the 17 samples taken from that area in mid-November, four are above the 12 parts per million (ppm) guideline established by the Tennessee Department of Health and Environment.

All of the samples were taken from the surface. One sample had a level of 450 ppm, while another had 440 ppm. These numbers were released by DOE Nov. 29. Other levels above the guideline were 13 ppm and 67 ppm. The sample with the lowest level was .25 ppm. Seven samples showed levels less than one ppm.

Jim Alexander, DOE spokesman, said that the sampling in the Civic Center area is in the final stages and information of the final analysis should be made available within the next few days.

The monitoring program, conducted by Oak Ridge Associated Universities for DOE [illegible] established last spring. [illegible] been ongoing in an effort [illegible] determine the effects of [illegible] cury in the environment. [illegible] formation collected [illegible] the interagency [illegible] working toward a plan [illegible] solution of the mercury [illegible]

The Task Force [illegible] last spring after DOE [illegible] that during a 20-[illegible] million pounds of [illegible] unaccountable. [illegible] was used in a lith[illegible] process at Y-12 [illegible]

Selected [illegible] throughout the [illegible] also analyzed for [illegible] plutonium was [illegible] samples. The [illegible] for the analy[illegible] levels of plu[illegible] picocuries [illegible] plutonium [illegible] ducted by [illegible] laboratory.

The Oak Ridger

35TH YEAR—NO. 210—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, NOVEMBER 9, 1983

From House committee —

Report raps DOE for mercury delay

By SANDRA LENZI
Medill News Service

WASHINGTON — The Department of Energy knew as early as 1977 that mercury pollution existed in Oak Ridge, but took action only when it appeared other sources might release that information, a congressional report says.

Two 1977 studies — one on the amount of mercury in Poplar Creek and the other an inventory of mercury used at the Y-12 Plant — alerted DOE to the problem. Nevertheless, DOE waited until April 1982 to order Oak Ridge National Laboratory to survey mercury levels in the East Fork Poplar Creek, according to the report.

"Several witnesses suggested that DOE was only stirred into action in 1982 by the impending possibility that the public might become aware of the sampling results of Stephen and Larry Gough, which documented unprecedented mercury levels in plant life in East Fork Poplar Creek. This would appear to be a correct interpretation," the report says.

Stephen Gough was an ORNL employe and Larry Gough a U.S.

(Continued on Page 7 No. 5)

The Oak Ridger

35TH YEAR—NO. 211—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, NOVEMBER 10, 1983

Closing laundry, replacing pipes at Y-12

Two environmental protection measures are being taken by the Department of Energy at the Y-12 Plant.

The measures come months after DOE disclosed that 2.4 million pounds of mercury was unaccountable. Much of the mercury has been lost to the environment through such outlets as East Fork Poplar Creek.

Both measures could affect EFPC, while only one is directly related to the historic use of mercury at Y-12.

The Y-12 laundry has been shut down and that work transferred to facilities at the Oak Ridge Gaseous Diffusion Plant. ORGDP has the necessary facilities to process and treat the wash and rinse water before it is discharged to Poplar Creek.

"This will eliminate the discharge of some six million gallons of wash and rinse water annually to East Fork Poplar Creek," Jim Alexander, DOE spokesman said.

Alexander explained that the laundry facility is used to clean the work clothes of those employes who must wear protective clothing on the job. He said that protective clothing is worn when there is a "potential for contamination."

Shutdown of the laundry will eliminate a major source of discharge to New Hope Pond, a wastewater treatment facility, which empties into EFPC.

Eliminating this discharge supports the Memorandum of Understanding, established last spring between DOE, the State of Tennessee Department of Health and Environment and the Environmental Protection Agency.

"EPA and the State have been concerned about these discharges and this results in a rather significant reduction in both the volume and content," Alexander said.

The MOU is aimed at improving environmental protection practices at Y-12.

In other action, DOE said it was accelerating the planned replacement of old, underground water lines at Y-12 near the buildings where mercury was either processed or stored.

Replacement of the lines would reduce the potential of a water line break which could result in contamination of EFPC with mercury, according to DOE. The lines are located in areas where mercury spills have occurred in the past related to its

(Continued on Page 7 No. 8)

• Number 8

Y-12 steps

— From Page One

historic use in a former lithium separation process.

Pipes at five buildings at Y-12 will be replaced. The work is expected to be completed by late 1985.

"We decided to move ahead and forward with the replacement of the pipes to reduce the possibility of lines breaking which might result in mercury contamination," Alexander said.

Replacement of the pipes is part of an ongoing, overall

The Oak Ridger

35TH YEAR—NO. 249—482-1021 OAK RIDGE, TENNESSEE, TUESDAY, JANUARY 3, 1984

Area government meetings —

EQAB with Council

As the holiday season ends and the new year begins, there are very few governmental meetings scheduled for this week.

On Thursday, the Oak Ridge Environmental Quality Advisory Board meets, preceded by a work session.

The work session begins at 7:30 p.m. in the Municipal Building courtroom, and involves members of EQAB and Oak Ridge City Council with Jim George of Westinghouse Electric Corp. The work session will deal with the economic advantages of the commercial low-level nuclear waste facility.

At the conclusion of the work session, EQAB will meet in the city manager's conference room for the group's regular monthly

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• Number 5

Meetings

— From Page One

meeting.

On the agenda for that meeting is a status report on the Oak Ridge Task Force on mercury, as well as other EQAB matters.

More mercury readings exceed state guidelines

About one-third of the soil samples taken near the Oak Ridge Civic Center for the Department of Energy's environmental monitoring program are above the state guideline for levels of mercury in soil.

The guideline level set by the Tennessee Department of Health and Environment in November is 12 parts per million (ppm). The results of additional sampling was recently released by DOE as part of its ongoing efforts to monitor the environment. The efforts began early last summer after DOE disclosed that about 2 million pounds of mercury was unaccountable during a 20-year period.

Included in the recent sampling was an analysis of 12 selected samples for levels of methyl mercury. This marks the first time that methyl mercury, the more toxic form of quicksilver, has been analyzed in the community. The results show that methyl mercury is less than one percent of the total

(Continued on Page 7 No. 4)

Mercury

— From Page One

mercury.

Ten samples were collected near the Civic Center and fitness track Nov. 29. One sample indicated a level of 350 ppm, with the others less than 1.5 ppm — well below the state guideline.

Additional samples were collected in the Civic Center area Nov. 29. Thirteen samples above the guideline had levels ranging from a high of 370 ppm to 13 ppm. Forty-seven of the samples collected at the same time ranged from 8.3 ppm to .07 ppm.

Other samples were collected by Oak Ridge Associated Universities for DOE Dec. 1, Dec. 7, Dec. 9 and Dec. 12. A total of 101 samples were collected those four days. Samples were again taken from the same area, including between the sewer line and the playground at the Alvin K. Bissell Municipal Park and from the fitness track. A high level of 400 ppm was found among the 46 samples above the guideline.

In a Dec. 20 cover letter accompanying the results, DOE stated, "While it is unlikely that contamination extends into the playground, several verification samples will be taken in that area."

The letter also stated, "Creek sediments will be sampled as well to determine the effect of rainfall runoff in eroding the contaminated topsoil which was placed on the sewer line."

Of the 12 samples selected for analysis for methyl mercury, vironmental protection office, said today the low levels "mean the Task Force will be able to consider mercury contamination as non-organic in its evaluation." (An inter-agency Task Force was formed last spring to review the mercury situation in Oak Ridge).

Jim Alexander, DOE spokesman, said today that the results indicated that levels of methyl mercury were very low and within the background range. "Basically, the levels were more a confirmation that methyl mercury is much less than the total mercury."

ORAU continues to collect soil samples based upon requests received by DOE from private property owners. Three samples collected Dec. 1 on North Beverly Circle had levels of .15 ppm, .20 ppm and .15 ppm.

A water sample was taken Dec. 2 at Route 5, Dutch Valley Road in Clinton. The mercury level was less than .04 parts per billion (ppb). A normal range in fresh water according to the 1978 Academy of Sciences report, "An Assessment of Mercury in the Environment," is .02-.06 ppb.

Four soil samples were collected Nov. 21 at a Montana Avenue location. The levels were reported to be .20 ppm, .12 ppm, .13 ppm and .08 ppm.

In an effort to compare levels of mercury in soils from locations outside the region, soil from Alexandria, Va., was analyzed and indicated a level of

The Oak Ridger

OAK RIDGE, TENNESSEE, MONDAY, JANUARY 30, 1984

Govt. meetings —

EQAB to talk litter and mercury

This week will be a light for governmental meetings in Oak Ridge and in Anderson and Roane counties.

The city's Environmental Quality Advisory Board meets on Thursday, while various county meetings are set for the early part of this week.

EQAB

The Environmental Quality Advisory Board meets at 7:30 p.m. Thursday in the city manager's conference room for its monthly meeting.

To be discussed are status reports for the Oak Ridge task force on the mercury situation, landscaping ordinance, as well as a report on the economic advantages of a low-level nuclear waste facility for Oak Ridge. EQAB will also hear a report on litter prevention programs.

Anderson schools

The Anderson County Board of

(Continued on Page 7 No. 3)

• Number 3

Meetings

— From Page One

Education will meet Tuesday at 7:30 p.m. to discuss contracts between the Board and bus owners.

Roane sessions

The Roane County in-lieu-of-tax subcommittee will meet at 7:30 tonight in the county executive's office at the Roane County Courthouse in Kingston.

The Roane County Ambulance Committee will meet at the same time tonight in the County Commission Room at the Courthouse, to conduct an overview of current services and assess needs for the coming year.

35-40 listed pollutants detected in Oak Ridge

By ROBIN HEAD INTEMANN

Less than one-third of 140 known pollutants have been found in Oak Ridge, according to the Department of Energy.

Wayne Hibbitts, of DOE's environmental protection office, said today that recent sampling conducted by Oak Ridge National Laboratory as part of the ongoing environmental monitoring program to evaluate pollution here, indicates that between 35-40 contaminants have been detected. "It's clearly true that we have less than one-third," he said.

HIBBITTS

The list of priority pollutants developed by the Environmental Protection Agency identifies 140 known contaminants. The list was submitted by TVA for evaluation by the interagency Task Force examining environmental problems in Oak Ridge.

The Task Force was formed last spring after DOE disclosed that 2 million pounds of mercury was unaccountable during a 20-year period beginning in the early 1950s.

"We then began looking for the 140, plus radioactivity," Hibbitts said, "and we detected in the range of 35 to 40."

However, Hibbitts said that much of what was detected "were not priority pollutants, but radioactivity." This includes, among others, uranium, thorium, plutonium, cesium, technetium and neptunium.

"If you look for radioactivity, you're going to find it," Hibbitts said.

Sampling of sediment and soil in the floodplain at two Oak Ridge locations along East Fork Poplar Creek indicated the highest number of pollutants and radioactivity. Areas up and down stream near the Atomospheric Turbulence and Dispersion Laboratory and near the Oak Ridge Turnpike past residential areas were locations with the highest number of pollutants identified, Hibbitts said.

The sampling locations were designated by David McKinney, with the state Department of Health and Environment's water quality division in Knoxville. Analysis was conducted by TVA, although analysis of radioactivty was completed at Y-12.

"We couldn't just sample randomly," Hibbitts explained. "We tried to find locations that were undisturbed ... We were looking for what was deposited over total years of plant operation."

Poplar Creek near Oliver Springs was sampled in an effort to determine background levels. The range was between 25 and 40, Hibbitts said. "Many pollutants are present in nature and you're going to detect them," he said.

Other locations from which samples were taken include Bear Creek, Melton Hill Lake, Clinch River, Watts Bar and the Tennessee River. Hibbitts said the highest levels were identified at East Fork Poplar Creek.

The other areas were sampled to provide a comparison, Hibbitts said. Also, one of the responsibilities that has fallen to the task force is to evaluate the watershed downstream from Y-12. Twenty-four pollutants, for example, were identified at Melton Hill Lake.

Arsenic, cadmium, chromium, copper, lead, mer-

(Continued on Page 7 No. 9)

Contamination

— From Page One

cury, silver and zinc were among the pollutants identified, Hibbitts said. He said he was not really surprised by the presence of the pollutants because of the analyses at Y-12. "In looking at the data they could explain where the materials could have originated," Hibbitts said.

Process discharges, cooling water discharges and coal piles at Y-12 are among the possible sources to which the pollutants could be linked, Hibbitts said.

Of the radioactive elements found, Hibbitts said that the plutonium numbers were "quite low in East Fork ... in fact they were either right at or were very close to background levels." At New Hope Pond the plutonium levels were "somehat higher, but even those numbers were well below EPA criteria."

Hibbitts said that 15 additional contaminant samples have yet to be analyzed. Hibbitts explained that because of known possible discharges from Y-12, samples have been taken by ORNL beyond those included on the list of 140.

The purpose of the overall sampling process, Hibbitts explained, is "to help the task force know what is in the environment and decide what to analyse. They need to see what is of potential concern."

Toxicologists at ORNL are being provided with the information from the sampling. "It's a very difficult process unless you have standards, which we don't. It's very much a matter of professional judgment ... We're asking a lot of ORNL," Hibbitts said.

The Task Force anticipates receiving analysis from the toxicologists within two months. Hibbitts stressed that the data are being looked at "strictly as a screening purpose." He said it will be at least two years before conclusions are reached on the significance of the identified pollutants and their levels.

The Oak Ridger

36TH YEAR—NO. 19—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, FEBRUARY 15, 1984

Mercury tests on people

By ROBIN INTEMANN

Despite assurances that there is no apparent threat to human health because of mercury in the Oak Ridge environment, a survey to check mercury in city residents will be conducted by the Tennessee Department of Health and Environment beginning in May.

Pat Turri, an environmental epidemiologist with the state, said the survey is an effort to determine how much mercury is present in the body as a result of environmental exposure. The survey is known as a body burden pre-survey.

Last year the Department of Energy disclosed that 2 million pounds of mercury was unaccountable during a 20-year period beginning in the early 1950s.

The epidemiological division has been active in evaluating the mercury situation in Oak Ridge since July. Turri and others in the state environmental epidemiological division, established a guideline of 12 parts per million (ppm) for levels of mercury in soil.

"The survey of residents is just a continuation of the soil studies," Turri said today from his Nashville office. "The next stage is to obtain more assurances that 12 ppm is a safe limit in that it protects the public."

Turri said that city staff members have been supportive of the survey. "The city has agreed to help us out," he said. Technical assistance will be provided by the National Centers for Disease Control in Atlanta. Turri said the Oak Ridge mercury survey is the first conducted by the state health department.

The pre-survey is scheduled to begin in May. Turri said spring and summer months typically represent the times of greatest exposure. "People are most active during these months," he said.

Turri said he hopes at least 100 persons will be identified for the survey. "It will be biased in the sense of focusing only on those we believe should be in the high range," he said. This would include persons exposed to areas above 12 ppm. Turri suspects this will include residents of the Scarboro community, those who live near East Fork Poplar Creek, and others who have worked with dredged soil known to have high levels of mercury.

A questionnaire will be distributed to help identify those persons to be surveyed, Turri said. He explained that this would serve two purposes; one in providing historical background, and the other to help screen out "exaggerated exposures." The latter would include persons who consume a

(Continued on Page 7 No. 2)

• Number 2

Mercury

— From Page One

great quantity of fish or, who may have worked with mercury.

Turri stressed that the upcoming study is not an occupational survey, in that it is not meant to necessarily involve Y-12 Plant workers; however, he hopes to identify those persons who may have dredged contaminated soil as part of their job.

Analyses of hair and urine samples will be collected to help establish body burdens. Turri explained that a body burden simply indicates how much mercury is in the body. "Because we live in a world ubiquitous with mercury we know there are certain levels already there," he said. The body burdens will establish elevated levels if they exist.

More than 1100 soil samples have collected as part of the efforts to analyze mercury in Oak Ridge. Information from the samples is reviewed by DOE and the interagency Mercury Task Force, formed last spring. A final report of the pre-survey findings should be published by May 1985.

The Oak Ridger

36TH YEAR—NO. 42—482-1021 OAK RIDGE, TENNESSEE, MONDAY, MARCH 19, 1984

Seek more soil samples

By ROBIN HEAD INTEMANN

Digging in dirt and kicking up dust may sound like child's play, but in fact that's just what one group of researchers is doing in an effort to determine the significance of elevated levels of mercury in Oak Ridge.

The researchers form the interim study group. It is part of the Interagency Task Force created last spring after the Department of Energy disclosed that 2 million pounds of mercury is unaccounted for during a 20-year period.

Members of the study group are concerned that many city residents may not be aware that dredged soil from East Fork Poplar Creek and sludge from sewage treatment plants may be contaminated.

Typically mercury-contaminated soil tends to be darker, Clayton Gist, with Oak Ridge Associated Universities, says. It contains gravel and is sandy. "There is a good correlation between the presence of mercury and the presence of coal," he said, although he was quick to note that this is "not a fool-proof indicator."

After DOE's announcement that mercury is missing, Oak Ridge Associated Universities began collecting soil samples for DOE. The task force, with representatives from the Tennessee Department of Health and Environment, the U.S. Geologic Survey, the Tennessee Valley Authority and DOE, is currently involved in developing a work plan for the cleanup of the mercury and other pollutants in the area.

Meanwhile, the interim study group was formed to evaluate only those areas where levels of mercury exceed the 12 parts per million (ppm) guideline set by the state. The group must first identify those areas and their use, and, finally, offer recommendations for interim, or temporary, treatment.

Once areas are identified, the group visits the location and talks with persons familiar with the property. "Mostly we ask questions about land use," Jim Harless, a city staff member, said.

"This is an opportune time for residents to find out if they have mercury or not," Harless said.

Working with Harless and Gist are Ralph Turner and Phil Walsh, both of Oak Ridge National Laboratory. Chuck Coutant, of ORNL and chairman of the city's Environmental Quality Advisory Board, also works with the other members in their evaluation.

Residents should contact city staff members to request a soil analysis. There is no charge for the analysis.

"People are so far not seemingly interested," Coutant said.

(Continued on Page 7 No. 2)

Members of the interim study group examine a mound of mercury contaminated soil in a garden on Emory Valley Road. Members of the group are, from left, Phil Walsh, Clayton Gist, Chuck Coutant, kneeling, Ralph Turner and Jim Harless.

• Number 2

Mercury

— From Page One

"They don't seem terribly concerned.... It's a real unknown, we may be beating a dead horse if there aren't that many gardens."

Between 40 and 50 privately owned properties have been analyzed to date, Gist said. Less than six of those have been identified with mercury levels above 12 ppm. However, Coutant is concerned that with spring rapidly approaching more residents will begin to work outside, particularly in gardens.

Curiosity is the explanation most often given by residents requesting analyses, Gist said. "But if they don't know where their soil came from they should find out," he said.

However, Harless said that the group doesn't feel that their role lies in soliciting requests door to door. But, as Coutant pointed out, "There is just not enough data yet for patterns."

He cited an example where levels of mercury were found to be 150 ppm at one location, but because others in the same neighborhood had not made requests the group did not know if other spots nearby had similar levels.

The Civic Center area near the Municipal Building was one location where mercury levels w[illegible] found as high as 510 p[illegible] r[illegible]

ed from the contaminated creek area.

"The city moved most of it (dredged soil)," Harless said.

Soil samples from city owned property near A&P indicated levels from .04 ppm to 8.4 ppm.

A total of 83 soil samples were collected from the Southfield Apartments areas. Of these only four exceed the state guideline. Three were from the sewer belt line and the other near the sidewalk at Rutgers Avenue. The levels above 12 ppm were 220 ppm, 230 ppm, 370 ppm and 410 ppm.

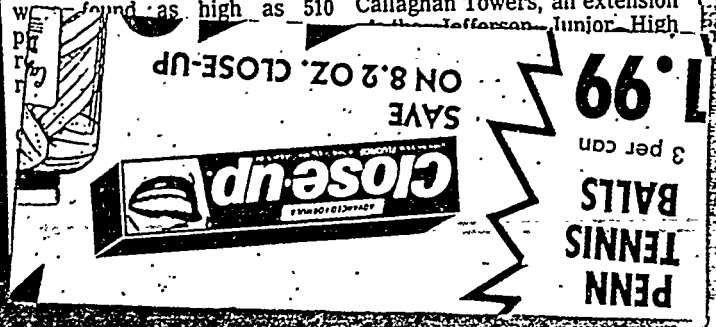
Forty soil samples were collected along the sewer beltway between North Purdue Avenue and Marquette Road. Of these, two were above 12 ppm, at 21 ppm and 43 ppm.

Additional soil samples were taken near the Southfield Apartments from a grassy strip between North Purdue Avenue and the sidewalk. The range was from 190 ppm to 420 ppm for the nine samples collected.

Soil analyzed from the St. Mary's church area was well below the guideline with the highest level at .16 ppm.

A private residence at Norway Lane had levels ranging from .20 ppm to .57 ppm.

The sewer beltway near Callaghan Towers, an extension [illegible] Junior High



The Oak Ridger

OAK RIDGE, TENNESSEE, WEDNESDAY, MARCH 21, 1984

Mercury report applauded

By ROBIN HEAD INTEMANN

The Department of Energy's proposed work plan for the environmental management of its Oak Ridge operations has brought an initial nod of approval from Rep. Marilyn Lloyd's congressional subcommittee on energy, research and production.

"Our initial reaction is that it is a comprehensive report," Jack Dugan, staff director for the energy, research and production subcommittee in Washington, said. "We feel it really meets the intent of the committee's concerns."

The report was requested by Rep. Lloyd and Rep. Albert Gore Jr., who chaired a congressional hearing in Oak Ridge on the mercury situation last July for the subcommittee on investigations and oversight.

The hearing came after the disclosure by DOE that 2 million pounds of mercury from the Y-12 Plant was unaccounted for during a 20-year period.

Rep. Lloyd and Gore stated last fall that, based on testimony presented at the July hearings, there appeared to be no imminent threat to human health. Following this statement they requested a work plan from DOE for environmental clean-up.

The work plan was sent to Rep. Lloyd and Gore two weeks ago and is still under review, Dugan said. He said that the positive impression of the report was based on preliminary reviews.

"It is as comprehensive as we had hoped," Dugan said. "We don't anticipate major revisions."

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• Number 5

Mercury

— From Page One

Mike Kopp, a spokesman in Gore's office, said that the report is still under review by the investigations and oversight subcommittee. Kopp did not offer comments about the contents of the report.

The 125-page report prepared by Joe La Grone, manager of DOE's Oak Ridge Operations, provides proposed planning action and costs for clean-up of the environment. An estimated $450 million will be required over the next five years for the Y-12 Plant, Oak Ridge National Laboratory and the Oak Ridge Gaseous Diffusion Plant. Clean-up at Y-12 may prove to be the most expensive, costing an estimated $220 million, according to the report.

Funding at ORNL would require an estimated $160 million and ORGDP would require an estimated $70 million, the report states.

"Rep. Lloyd is convinced that it will be an expensive undertaking and the report serves to illustrate why," Dugan said.

An additional $2 to $3 million would be required for the clean-up for subsequent years, the report indicates.

The funding would cover research and development activities, remedial action and long-term solutions to environmental problems at the three facilities.

In addition to its workplan DOE was also requested to submit a list of researchers to form a peer review group which would evaluate the efforts made by DOE in Oak Ridge.

Jim Alexander, DOE spokesman, said that the list will be submitted to the congressional subcommittees and the National Academy of Sciences for approval before those on the list are contacted. The list has not yet been made public, Alexander said.

The Oak Ridger

OAK RIDGE, TENNESSEE, THURSDAY, MARCH 22, 1984

U.S. atty gen. reviewing mercury

By ROBIN HEAD INTEMANN

The federal investigation into the mercury situation in Oak Ridge is in the hands of the U.S. attorney general, and has been for some months.

Jon Bogott, principal investigator for the local office of the Department of Energy's Inspector General's Office, said Monday that it is routine for investigations to be turned over the the U.S. attorney general to determine if there is "prosecutive merit."

The investigation was requested last spring by Joe La Grone, manager of the Department of Energy's Oak Ridge Operations. DOE disclosed in May that 2 million pounds of mercury was unaccountable over a 20-year period beginning in the early 1950s.

Bogott said he could not comment hypothetically on what type of charges might be brought out in such a case nor against whom.

"We work with the U.S. Department of Justice constantly," Bogott said. "As far as making a decision as to what might be a prosecutive offense and who might be prosecuted that has to be made by the local U.S. attorney general's office."

However, John Gill, the U.S. attorney general in Knoxville, confirmed that his office is involved in reviewing the report of the investigation, but said, "The primary responsibility of the case lies with the Land and Natural Resources Division of the Department of Justice."

The report on the investigation was forwarded to the U.S. attorney general's office last fall, according to Mike Conley, with

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— From Page One

the inspector general's office in Washington. Conley said he could not comment specifically on the report.

Gill said the possibility of charges "depends on what's reported. It depends on the final decision of the Land and Natural Resources Division. There has been a lot of unfortunate speculation as to whether there is something to be prosecuted or not."

Steve Gough, formerly of the environmental sciences division at Oak Ridge National Laboratory, conducted environmental studies of mercury in East Fork Poplar Creek. Gough conducted the studies more than a year before DOE made the information public. He later left ORNL. A reprimand for his unauthorized study was lifted from Gough's record at the request of La Grone.

"I am very anxious to see the report," Gough said. He added that he has filed a Freedom of Information request.

Gough is currently with the U.S. Army's Medical Research Institute of Chemical Defense in Maryland where he is involved in computer modeling in the environmental sciences.

In a telephone interview last week, Gough said that he was aware that the report was handed over to the attorney general's office some months ago. He said that he has not heard from anyone in that office.

Bogott did not disclose when the report might be made public. "It is out of my hands at this point," he said. "It's possible it could be some time."

"I understand that this is one of the more complicated investigations," Gough said. He did not elaborate, but said he had spoken with Bogott several weeks ago about the report in a general context.

Bogott said it is the policy of the inspector general's office not to discuss on-going investigations. "Until you find that you have some substance in the investigation you don't want to discuss it," he said. "We're dealing with reputations and personal integrity in most cases."

When reports are sent to the U.S. attorney general's office, Bogott explained that further investigation is possible if requested. Or, if the case has no prosecutive merit it would not warrant additional work.

Of the mercury report, Bogott said, "We're in consultation with them on whether further investigation is necessary if it warrants a prosecutive opinion."

All work with the attorney general, Bogott said, is "done with the very strictest of confidence."

A five-year statute of limitations is a general rule of thumb in such investigations, Bogott said. "Time is a factor that is on our side. We don't want to overwork a case, but neither do we want to underwork it. It is not our intention to drag things out."

Bill Carpenter, second from left, with the citizens committee Tuesday. Others fro Jeff Ginsburg, member of the committee; Carpenter; Pete Dayton, with the DOE selection committee; Wayne Range, DOE spokesman; and Jennifer Fowler, a DOE

The Oak Ridger

36TH YEAR—NO. 40—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, MARCH 15, 1984 25 CENTS

Y-12 pollution developments

A report on mercury in streams around the Y-12 plant has been turned over to federal prosecutors for possible criminal charges, a government official said.

And in a related development, U.S. Rep. Albert Gore Jr., charges that the Environmental Protection Agency was forced to give up its right to police government weapons facilities, such as the Y-12 plant.

Gore requested permission this morning to ask EPA Administrator William Ruckleshaus, who is appearing at a House subcommittee hearing, questions about the change in EPA policy.

The U.S. Justice Department has the report on missing mercury and will decide whether to further investigate alleged violations of pollution laws and a reported coverup of information by employees working for the government or government contractors, the Knoxville News-Sentinel reports.

The report, which hasn't been released to the public, was compiled by the Department of Energy's regional Inspector General's Office in Oak Ridge.

(Continued on Page 6-No. 10)

...ney, and they have it for ...eview," Michael Conley, executive director of DOE's investigations branch in Washington, says.

"I can't say when it'll be back with us. It depends on what they do. They're reviewing it to exercise their discretion. I can't tell you what they're doing with it," Conley said.

A final decision whether to press charges will be made in Washington, according to U.S. Attorney John Gill.

The report contains information on several pollutants, chiefly mercury.

More than 2 million pounds of mercury either has been lost to the environment or hasn't been accounted for at the Y-12 plant since the early 1950s.

In the other development related to the local environment, Gore said, "We've been told in off-the-record conversations that they (EPA) were simply strong-armed," Gore said. "They were forced to adopt a position they didn't feel was correct."

Last month, EPA and the Department of Energy signed an agreement exempting all 45 DOE nuclear weapons facilities from environmental regulations aplying to private companies and other government facilities, according to documents from the EPA, DOE, and Justice Department.

Gore said he understood that Secretary of Energy Donald Hodel "appealed to the White House" for the agreement and that the decision was contrary to recommendations by EPA Administrator William Ruckleshaus and the Justice Department.

"I can only speculate that the reason is two-fold," Gore said. "No. 1, that the Department of Energy did not want to be answerable to anyone else and, No. 2, that OMB (Office of Management and Budget) was concerned that in the future the government might incur liability ...if it were forced to meet the ...as private corporations."

The memorandum of understanding between EPA and DOE was reached after Department attorneys ruled in separate opinions that government weapons facilities were under the jurisdiction of the Resource Recovery and Conservation Act.

The memorandum excludes the facilities from state regulation and oversight, and prevents private citizens from suing them.

A year ago, the Tennessee Department of Public Health uncovered the release of 2.4 million pounds of mercury at the Y-12 plant, and two environmental groups have sued DOE over the loss. The government has petitioned in federal court in Knoxville to dismiss the suit on the basis of the memorandum of understanding.

"The state of Tennessee uncovered the mercury at Y-12," Gore said. "If this agreement had been in effect a few months ago, the state wouldn't have even been allowed in there."

Mercury

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February on several pollution counts, including the mercury levels in a stream that flows through Oak Ridge and drains into Clinch River.

DOE says much of the mercury discharges was curtailed by 1963, and since 1977 only 50 pounds of mercury per year escape into the creek.

State Water Quality specialist Barry Sulkin, who was already working on the pollution case, said Wednesday that DOE's disclosure will force the state to widen its investigation from focusing on East Fork Poplar Creek to looking at Clinch River and Watts Bar Lake as well.

"We need to expand our study and regroup," Sulkin said.

Sulkin called in the State Division of Environmental Epidemiology to help collect data, and the head of the division is expected to meet Water Quality officials Friday.

In addition to state and federal officials, local environmental groups reacted to the declassified report, one calling the leakage a "disaster" and another characterizing the DOE's low hazard assessment as "really off-base."

"This massive amount of mercury surely compares with other major mercury disasters in the world," said Shirley Harkins, who works with the Tennesseans Against Chemical Hazards group.

Harkins disputed DOE assessments that the 1.9 million pounds of mercury would remain locked in underground geological formations.

"It's ludicrous to assume that mercury will stay in sinkholes underneath the reservation — it will find its way into the Clinch River. . .there needs to be an extensive effort to determine groundwater contamination from all operations," she said.

Gary Davis, a spokesman for the Legal Environmental Assistance Foundation, said DOE was "really off-base for downplaying the potential hazard" from mercury contamination.

Dr. Thomas Clarkson, head of the University of Rochester (N.Y.) toxicology department, said Wednesday he couldn't see "an immediate health risk" from DOE data supplied to him last week.

"It is a bit early to say, but certainly the long-term effects require some thought and consideration," said Clarkson.

5/19/83

Congress to probe mercury losses

BY TERRY McWILLIAMS
Journal State Reporter

OAK RIDGE — Two Congressional subcommittees will conduct a joint probe into the Department of Energy's loss of 2.4 million pounds of toxic mercury from a nuclear weapons production plant and will look at possible adverse health effects resulting from the leaks.

The subcommittees, chaired by U.S. Reps. Albert Gore Jr. and Marilyn Lloyd, agreed Wednesday to conduct a June 27 hearing to examine mercury spills of 1.9 million pounds onto the ground and 457,000 pounds into East Fork Poplar Creek. Another 30,000 pounds vaporized into the air.

The hearing date is still tentative, but the subcommittees will meet in Oak Ridge, according to a Congressional aide.

The Department of Energy, which released the once-secret 1977 report Tuesday, has maintained that the 27 years of mercury leaks posed no hazards to area residents.

"The disclosures by DOE officials raise serious questions that must immediately be addressed," Gore said in a statement released Wednesday. "How could such enormous volumes of mercury have been lost at the plant in the first place?"

Gore, who chairs the subcommittee on Investigations and Oversight, said the hearing would allow Congressional investigators to question Energy Department officials and other state and federal authorities involved with environmental regulation.

The groups, which include Lloyd's subcommittee on Energy Research and Production, will talk about forming a group of experts who will independently review the 1977 DOE study and confirm or reject DOE's contention that the mercury releases caused no public danger.

"One of the things that the subcommittee will probably insist upon is all the material from DOE — even some that is classified — to conduct an entire study," said Mike Kopp, Gore's press secretary.

In questioning residents as well as officials, Gore said he hoped the

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Mercury level up, but falling, after water line burst

By MATT NAUMAN
Journal Energy Reporter

OAK RIDGE — Mercury levels in East Fork Poplar Creek Wednesday were almost 50 times the federal limit three hours after 1 million gallons of fresh water leaked from a building at the Y-12 weapon's component plant.

"It's certainly undesirable, but we don't anticipate any health problems," said Union Carbide spokesman Harvey Cobert. Carbide runs the Y-12 plant and two other atomic plants for the Department of Energy in Oak Ridge.

"What's going into the creek will certainly diminish once it leaves the federal reservation and flows into the community," Cobert said.

A 12-inch water line burst under the Alpha-4 building of the Y-12 plant at about 3 a.m. Wednesday. Alpha-4 was used for lithium enrichment, a process which used mercury.

Water samples taken where the outfall from an artificial pond meets East Fork Poplar Creek show mercury concentrations reached their highest at 99 parts per billion (ppb) at 6:45 a.m., three hours after the line broke.

Cobert said the first sample taken at 3:45 a.m. showed 7 ppb of mercury. Federal standards are 2 ppb, while the state permits up to 5 ppb, Cobert said.

By 5:30 a.m. the mercury level reached 8 ppb and at 6:45 a.m., the level was its highest at 99 ppb, the spokesman said. An hour later, at 7:45 a.m., the amount of mercury had dropped to 79 ppb.

The latest available sample, taken at 3:45 p.m. Wednesday, showed the amount of mercury had fallen to 33 ppb.

"It seems to be staying in that range now," Cobert said.

Samples are still being taken, but the latest results won't be available until sometime today, Cobert said.

Between 350,000 and 400,000 gallons still remain in the basement of the Alpha-4 building, Cobert said.

Samples taken from six basement rooms, which ventilated the building until it ceased production 20 years ago, ranged from 17 to almost 1,200 ppb, Cobert said Thursday.

The mercury level in one room reached 1,197 ppb, which is nearly 600 times the federal stream standard.

Cobert said workers began pumping the water from the basement into storage tanks at 11 a.m. Thursday. The work will take about five days to complete, he said.

The tanks of contaminated water will be stored on-site of the Y-12 plant, Cobert said.

Though they don't know for certain, the DOE is assuming the pipes simply broke because of their age.

Cobert said the piping under that building is about 40 years old. A restoration project is under way to replace the pipes but it will take several years to complete.

The water line was carrying fresh water used for drinking and toilet facilities.

In May, the DOE admitted it had lost 2.4 million pounds of mercury in Oak Ridge between 1950 and 1977. Of that amount, 475,000 pounds of mercury contaminated East Fork Poplar Creek.

Recent soil samples outside an Oak Ridge junior high school showed mercury levels of about 40 parts per million. Cobert said samples from streams and soil really can't be compared.

radioactivity. That was before the days of the process using mercury.

On the subject of deformed fish, Charles C. Coutant, who is Cox's supervisor, says that sudden temperature changes will cause skeletal deformities in newly hatched fry. Cox says he has produced deformed fish in the laboratory by subjecting them to high temperature during the larval stage. Cox says he has never taken an abnormal fish in his sampling of the East Fork. He says if they were in New Hope Pond some of them would escape from time to time.

Coutant has worked on fisheries research in Watts Bar Lake for several years, including tracking of striped bass (rockfish), and says he has not seen any deformed fish in the lake, even though they are not uncommon in public waters.

I've been fishing in Watts Bark Lake since the summer of 1945 and I've caught only two abnormal fish in all that time. In the winter of 1982-83, I caught a white bass (locally known as "stripes") with a minor skeletal deformity. It was healthy, putting up a good fight on rod and line and was released. A second white bass had a crescent-shaped gap between the two dorsal fins, as if something had taken a bite out if it. It had healed normally and there was nothing wrong with the fillets cut from it.

I caught a smallmouth bass in Fontana Lake about three years ago that had a spinal deformity that offset the tail and made the body shorter than normal. When I showed it to the people at Fontana boat dock, a member of the staff said, "I see you got one of those humpbacked bass." Obviously they were fairly common in the lake that year. I haven't caught another during my annual visits since that one.

I worked in Y-12 during the years of the "ADP" program, when mercury was called "solvent" and the project was classified. I never saw anyone wading in mercury up to his knees. Building 9201-2 (popularly called "Alpha Two") was the site of one of the pilot plants used to develop the process. Workers wore boots to keep their feet dry. The floor was covered with water to prevent dust and vaporization of spilled "solvent." Some floor drains were plugged to keep spills out of

Reservoirs. Tests were run with an atomic absorption spectro-photometer and only fish from Pickwick had more than the FDA limit in force at that time of 0.5 parts per million. The limit has since been raised to one ppm.

At present, only one area other than the East Fork is closed for human consumption of fish. That is the North Fork of the Holston River which was polluted by mercury from the Olin plant at Saltville, Va. That plant has been closed several years and final cleanup is expected within the next year.

The mercury story has hurt Oak Ridge and surrounding area. I talked with a young woman in the press room at the Recreation Vehicle trade show in Louisville Nov. 29. She had been following the story as part of her work with an industry publication and asked how long we had lived in Oak Ridge. When I replied, "Since 1945," she asked "And you're still drinking the water?" I assured her that we didn't get our water supply from the East Fork. She said the publicity implied that half the population was in danger of severe mercury poisoning.

Dave and Susan Fisher, who operate Bayside Resort on Watts Bar Lake, say the bad publicity has hurt their business. They get calls from out of state from people who want to know if it's safe to spend a vacation on Watts Bar Lake. The Fishers think that many people have been scared away from Watts Bar.

People outside the Tennessee Valley don't pay much attention to TVA, with the exception of the snail darter, but a woman in the Missouri welcome station on I-55 north of Memphis knew about our mercury problem last summer. I was asked about it at the OWAA conference in Wichita in June and at Reelfoot Lake in September. Now I'll be busy for the next few months answering questions about deformed fish.

Hearings on mercury loss likely June 27

By CATHERINE FOSTER

Two congressional subcommittees will be holding hearings in Oak Ridge next month on the Department of Energy's revelation this week that more than two million pounds of mercury has been lost from the Y-12 Plant into the ground, air and water.

The subcommittees, of the House Science and Technology Committee, are tentatively scheduled to meet June 27 here, but that date is very tentative, says Mike Kopp, spokesman for U.S. Rep. Albert Gore Jr., the chairman of one of the subcommittees. Too, a location for the hearing has not been determined, Kopp added..

The two subcommittees are the Subcommittee on Investigations and Oversight, chaired by Rep. Gore, and the Subcommittee on Energy Research and Production, chaired by U.S. Rep. Marilyn Lloyd.

Kopp said that the witness list has not been set yet, and the availability of witnesses will help determine the hearing date. Among prospective witnesses will be officials from DOE, the Environmental Protection Agency and the Tennessee Public Health Department; Kopp added that residents who "are affected or think they are affected" by the mercury releases will also be invited to testify.

But before that subcommittee hearing is held, Oak Ridge city officials will be conducting their own hearing. Oak Ridge City Council will meet on Monday, and Joe La Grone, manager of DOE's Oak Ridge operations, and William R. Bibb, DOE's director of DOE's Energy Programs and Support Division, will be on hand to discuss the mercury releases and answer questions. Too, the Oak Ridge Chamber of Commerce is planning a session with DOE officials on May 27, and the city's Environmental Quality Advisory Board will hold a similar meeting on June 1.

The mercury releases have been known about and discussed for some time, but the quantity of the releases was not known until the release of DOE's report Tuesday afternoon.

Charles Coutant, EQAB chairman, said this morning that he had "assumed there were data there, and I'm glad to see them get them out. It certainly surprised the heck out of me that the numbers are so large."

The next stage, Coutant said, is to examine the data, do further sampling, and then "decide what needs to be done.... These are not trivial releases, and they ought to followed as far as they can" on from Poplar Creek, which has been closed to fishing because of mercury levels found in fish, on to the Clinch River and Watts Bar Lake.

Mercury itself is not hazardous, Coutant pointed out. "When we were children, we used to coat nickels with mercury, rubbing our fingers in it. But when elemental mercury (which is what was released at Y-12) is turned into methyl mercury, it is dangerous. Mercury becomes methylated in sediment, which is where much of the mercury is located. We know that some of it has become methylated, because that's what's turning up in the fish. How much of it has methylated? We have a clue, but we don't know, and we need to know. Any additional data that DOE can release will be helpful. This is part of DOE's past history that they have to live with."

Coutant said that it's possible "that the hazard is small, but we won't know that until we have all the data."

The 1977 report released Tuesday by DOE shows that 2.4 million pounds of mercury was released at Y-12 between 1950 and 1977.

The mercury was used primarily between 1950 and 1963 as part of a process that separated lithium, the lightest-known metal and a component of thermonuclear weapons.

In a prepared statement, Rep. Gore said the disclosure raises serious questions "that must be addressed."

"How could such an enormous volume of mercury have been lost at the plant in the first place?" Gore said. "Why wasn't

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the community of Oak Ridge informed of this problem when DOE first discovered it six years ago? At the hearing, I intend to hear the concerns of the people of Oak Ridge, and decide what is the most appropriate course of action to alleviate those concerns. Both in government and industry, it has taken a long time to realize how serious these problems with chemical waste can be. The hearings are designed to uncover facts and determine what changes might be necessary to ensure that government polices itself as well as it does private companies."

Rep. Gore said the subcommittees would consider creating a task force to review the 1977 study, particularly DOE's conclusion that the emissions don't constitute a health hazard.

DOE spokesman Wayne Range said mercury is no longer used in any of the Y-12 plant's processes. He said some of the liquid mercury remains stored at the plant in 76-pound metal flasks.

The report, compiled by Union Carbide Corp., which runs the plant, said almost 1.9 million pounds of mercury was lost during accidental spills.

An additional 475,000 pounds was spilled into the East Fork Poplar Creek, which runs through Oak Ridge. About 30,000 pounds of mercury was lost into the atmosphere, the report said.

Meanwhile, a former research biologist at Oak Ridge National Laboratory says DOE officials covered up studies of mercury releases.

Steve Gough, then of the lab, and his brother, Larry Gough, a geochemist with the U.S. Geological Survey, took unauthorized samplings from East Fork Poplar Creek in late 1981. Steve Gough has telephoned The Oak Ridger, The Knoxville News-Sentinel, and CBS's "60 Minutes" to tell his story about their samplings, which revealed heavy concentrations of mercury contamination. The Gough samples triggered an authorized sampling in May 1982 which led to the state's posting of the creek as a mercury hazard.

Gough says.

"I'm almost 100 percent sure that they would not have done anything if it hadn't been for our study," Gough says. "It became a hot potato and they realized they couldn't sweep it under the rug. So they got some information to see what they could ascertain about the problem and hoped I wouldn't say anything."

Gough now works as a computer software engineer in Webster Van Winkle, head of ORNL's aquatic ecology section and Gough's former boss, said the Goughs' unauthorized sampling spurred the "official" samplings.

"It's clear to me it had an effect in stimulating it," Van Winkle said. "It might have occurred anyway, but maybe half a year later."

Gough says samplings of mosses and liverworts from the creek were analyzed at Larry Gough's USGS lab in Denver, and that ORNL officials later asked that the samples be returned.

Last Carbide savings plan —

Mercury

From Page A1

nt Counsel which represents the
l needs of area poor, said only
of the signs remain standing.

"We still have children playing
fishing in that creek," Fuzzell
l.

David McKinney, with the
oxville office of the state health
artment, said "several dozen"
hs were erected last November,
they quickly became "collec-
's items."

McKinney said making sure
ple don't eat fish caught in the
ek is the state's main priority
ht now.

City Councilman John Bryant
d the mercury report should
ve been made public earlier.

"The release of this report shows
redibly bad timing," Bryant said.
can't do good things for this
y."

Bryant questioned the wisdom of making the mercury problem public while the DOE searches for a replacement for Union Carbide as manager at its facilities.

DOE environmental engineer Gabe Marciante said in addition to mercury, traces of PCBs, thorium, uranium and plutonium have been found in the sediment of the creek.

A recently-formed DOE task force will study the health and safety impacts of all these substances on nearby residents, Marciante said.

Meanwhile in Nashville Monday, state health officials expressed concern that methylmercury contamination plaguing the creek may have been spread to other areas of the county through construction work.

Terry Cothran, a department environmental engineer assigned to study health risks associated with the mercury poisoning, said bridge and sewer construction near the East Fork Poplar Creek may have spread contaminated river sediments to other areas of Anderson County.

"One thing we've heard is that there's been some bridge construction across Poplar Creek. People may have trucked off the dirt to fill in low spots in their yard.

"The city of Oak Ridge also has constructed some sewers through there in the past two or three years and we're afraid some of the contaminated soil may have been moved around," Cothran stated.

Oak Ridge Public Works Director Lowell C. Strunk said he is aware of several instances when potentially contaminated sediments from the river or adjacent flood plain have been disturbed by construction.

"There have been a couple of occasions when we've had to dredge sand or gravel bars around bridges to keep the creek from backing up. The material from the bars was brought up and spread along the top of the bank," Strunk said.

Most such work has been done near two bridges over the creek on State Route 58 and 95, which run concurrently through the city.

Facility cleanup meeting Thursday

Federal and state officials will meet with the Department of Energy to discuss differences over proposals to clean up pollution at DOE's Oak Ridge nuclear facilities.

The meeting, scheduled for Thursday, comes about two weeks after the Environmental Protection Agency wanted a final agreement.

The original proposal, agreed upon by the EPA and the state Department of Public Health, called for forming a task force to study East Fork Poplar Creek mercury problems, and determining the extent of contamination involving other toxic chemicals.

Dates were specified for most of the actions, according to the document.

Energy department lawyer James L. Foutch said DOE did not approve the document because it reflected "several areas where DOE's commitments were stated differently than we expected" after the April meeting among the three agencies. Several dates were impossible to meet, he said.

State officials, meanwhile, said the Energy Department's redraft calls for more study of the plant's pollution problems, rather than adhering to specific dates to begin clean-up measures.

In addition, State Water Quality officials said they would ask for additional measures, including a provision calling for DOE to monitor additional "heavy metals" in its wastes. EPA and the state will also meet Wednesday.

Officials deny mercury cover-up

By MATT NAUMAN
and KEN RENNER
Journal Reporters 5/24/83

OAK RIDGE — Top officials of the Energy Department's Oak Ridge Operations Monday denied charges of a cover-up on information about mercury contamination in East Fork Poplar Creek.

"There has been no cover-up,"

Related story, Page A3

said James Foutch, DOE's deputy chief counsel, during an Oak Ridge City Council meeting.

The attorney also denied any criminal intent or any criminal violations by DOE officials.

A report completed in 1977 which admits an estimated 2.4 million pounds of toxic mercury was leaked, spilled or lost since 1950 was not released until this month. Besides the time lag, the DOE Inspector General is also probing allegations made by a former Oak Ridge National Lab employee who said he was forced to quit as a result of his mercury research.

Joe La Grone, newly-appointed DOE boss in Oak Ridge, said he couldn't speak on past problems, but vowed to be a "personal force" in seeing that solutions are publicly provided in the future.

"I think it would have been a lot better if people had known all of this long ago," La Grone said of the report on mercury losses.

The DOE contingent appeared dur[illegible] the r[illegible] ses [illegible] of C[illegible] Council to give citizens and politicians a chance to inquire about the mercury losses.

Dr. William Bibb, another DOE official, said his department's reactions to the mercury contamination have included:

- A study by Battelle Columbus Laboratories on vegetables which may have been grown in soil taken from East Fork Poplar Creek.
- Work at the Oak Ridge Research Laboratory where rats have been fed creek sediment to determine the effects of mercury consumption.
- Evaluating all hydrogeological data to see if more sampling of soil or drilling of wells near the Y-12 plant can determine where the spill[illegible] mercur[illegible] beca[illegible]
- Soil sampling provided by the Oak Ridge Associated Universities to the city of Oak Ridge for those who have worries over possible mercury poisoning.
- Analysis of the Robertsville ballfield and tennis courts to measure the impact on the atmosphere when the creek floods in the area.

During the meeting, a resident of the low-income Scarboro community near the contaminated creek said most of the signs erected by the state Department of Public Health last November have now been removed.

The warning signs banned fishing in the creek.

Jimmy Fuzzell, Scarboro resident and official of the Oak Ridge

Oak Ridge County area has brought what de-

employees rides over the nearly completed site.

OR plants 2nd worst N-pollutors in U.S.

By CAROLYN SHOULDERS
The Tennesseean

The Department of Energy's Oak Ridge operation emits the second highest quantity of airborne radioactive pollutants of all facilities in the country, according to the Environmental Protection Agency.

In a proposed regulation published by the EPA in the Federal Register, the Oak Ridge reservation is listed as one of the 13 DOE facilities with the largest emissions of radioactive pollutants, and Oak Ridge is ranked second in that list behind the DOE Feed Materials Production Center at Fernald, Ohio.

"It's ranked second based on the potential exposures to individuals we calculate offsight," said Terrence A. McLaughlin, chief of the EPA Environmental Standards Branch.

"They (DOE) should do some more to reduce their exposure to provide an ample amount of protection."

He added that he is "not prepared" to state the level of emissions from the Oak Ridge facilities — including both the Y-12 weapons plant and the Oak Ridge National Laboratory — is unsafe.

"There are too many uncertainties," he said.

A DOE Oak Ridge spokesman said the EPA figures may be incorrect.

"We are remodeling and refining the work EPA did, and there is a possibility we'll come out with much lower doses," said Gabe Marciante, DOE environmental engineer.

"So it (DOE-Oak Ridge) will not of necessity be the second worst case listed in the country."

The EPA published the ranking in the April 6 issue of the *Federal Register*, where it explained a proposed regulation to control the emission of radioactive pollutants.

The standards proposed for DOE facilities are more relaxed than for other commercial facilities, but neither DOE Oak Ridge nor the Feed Material Production Center would meet even that more relaxed standard, the EPA notice says.

The EPA notice says that EPA cannot propose stricter standards for DOE facilities because they provide "substantial benefits in the areas of electrical power generation and national defense."

"The consequence of a more restrictive standard would be to eliminate some of these beneficial activities," it says.

"Consequently, the risks associated with the proposed standard are not unreasonable."

In its published notice, EPA estimated that it would cost $10 million to bring the Oak Ridge Y-12 weapons plant into compliance with its proposed regulation, which was the subject of an EPA public hearing in Denver yesterday.

The $10 million figure was based on estimates by the Pacific Northwest Laboratory, which contracted with EPA to determine what types and the costs of additional controls needed at Y-12, McLaughlin said.

But Marciante said DOE Oak Ridge never sent PNL all its information on airborne emissions, and that DOE estimates additional controls would cost from two to five times as much.

"It would involve quite a bit more equipment than EPA has said," Marciante said.

The EPA notice says the highest potential doses to individuals nearby the Oak Ridge site are mostly caused by uranium-234 and uranium-238 emissions from the Y-12 plant, which uses enriched uranium.

Marciante said that while the Y-12 plant emits the most uranium of all three DOE Oak Ridge facilites, the Oak Ridge National Laboratory emits the highest concentration of radionuclides.

When asked why DOE did not send EPA its most accurate data, Marciante said, "Number one, they didn't request it. And they felt the quickest thing for them to do was to use previously compiled date."

EPA was supposed to develop emissions on airborne radioactive pollutants in 1977, and was sued by the Sierra Club for failing to do so. On September 30, 1982, a federal court ordered the EPA to develop its standard for such emissions and publish its proposal.

McLaughlin said the EPA never developed the standard before because "There was a long period when it was not considered a priority."

The proposed emission standards would limit exposures to individuals at 10 millirem per year to the whole body and 30 millirem per year to any organ.

The EPA said the highest potential doses to individuals near the Oak Ridge Reservation are calculated to 50 millirem to the lung and eight to the bone.

Mercury concentrations found near junior highs

OAK RIDGER June 21, 1983

By CATHERINE FOSTER

Levels of mercury ranging from 0.05 to 40 parts per million have been found in soil at Jefferson and Robertsville Junior High Schools.

The level of 40 parts per million ranks alongside the highest levels the U.S. Geological Survey has ever found in soil, but there is no federal standard for mercury contamination in soil.

The figures, released Monday by the Department of Energy, were compiled by researchers for Oak Ridge Associated Universities, who examined mercury levels in soil, water and wellwater along East Fork Poplar Creek.

The largest numbers were found 170 meters from the entrance of Jefferson Junior High School, where 40 parts per million of mercury were measured. Only three meters from the entrance, the level was 2.4 parts per million. At Robertsville, measurements taken at the edge of the creek showed ten parts per million.

Water measurements showed 0.75 parts per billion in the creek behind Robertsville Junior High.

Federal standard for mercury contamination in fish is 1.0 ppb.

In wellwater from two wells on Tuskegee Drive, levels of mercury less than 0.1 parts per billion were found, according to the ORAU analysis.

DOE officials, in releasing the data, decline to provide analysis of the figures. Michael Bruner, assistant commissioner of the state Department of Public Health and Environment, said that he's not sure what the numbers mean. "We're having them analyzed right now, and we hope to have an answer by the end of the week," Bruner said. "Since there's no federal standard, we're just not ready to comment on details in the report now. However, we certainly are pleased that DOE reponded to our request for details, and it shows a real commitment both to the city and to us."

Ralph Brooks, assistant director of the Division of Air and Water Resources for the Tennessee Valley Authority, says the numbers offer no special concern to him. "Just the numbers, by themselves, are meaningless in evaluating the impact," Brooks said. But the total amount of the mercu release over the years — million pounds, of which 475,(pounds is estimated to have bc lost in the creek — does conce him.

"Would I take my child out Jefferson or Robertsville bas on these figures? No, I can't s that I would," Brooks said th morning. "The numbers, in broad range, indicate a signi cant amount of mercury in th area, but it doesn't indicate an danger."

Brooks said he might becon alarmed if the high soil readin were found, for example, on farm where vegetables we grown or in an area whe children play and get dirt them.

"The fact that mercury is the environment is of concern me. But I would want to kno where, and in what form, befo I became too alarmed," Brool said.

If mercury were found methyl form, within two fee the surface, at high levels, t would be cause for concern, said.

"The reason that the o federal criteria you're find are for fish is that's the way public health is threatened, through the food chain," Broo said. "Mercury is insoluble a relatively immobile. It requi bacterial action to become threat. In addition to the fish, other danger comes from wo ing in the soil and throu vegetables grown in the soil."

Brooks feels strongl however, that, because of large amount of mercury un counted for, it should be clear up. "I'd like to see the mercu cleaned up and removed," said. "I can't say stron enough that an amount of m cury that large must be remov from the environment. If we h caused it, I'd still be shouti that we've got to clean it up."

He added, "No organization

Mercury

From Page A1

-ent of Energy publicly admitted May that it lost 2.4 million unds of mercury in Oak Ridge. The mercury spillage was detailed n a secret 1977 report which wasn't classified and made public until ay.

The greatest threat to human ealth from mercury is believed to ome from extended contact with ercury-contaminated soils or consumption of certain vegetables grown in such soils.

Dr. Ralph Brooks, assistant dictor of Tennessee Valley Authority's air and water resources division, said the soil mercury readings released in the report "show there a significant amount of mercury."

Howard Zeller, assistant regional administrator for the federal Environmental Protection Agency, aid the two reports do not indicate ny immediate danger.

The highest single test for mercury in soils — 40 parts per million - was measured near Jefferson Junior High, in a sewerage ditch in front of the school. Smallridge said the high reading apparently comes om the fact that fill dirt in the itch may have been taken from an area near one of the creeks where mercury concentration has been found to be high.

Smallridge said the sewerage ditch "is not a normal area where students would frequent."

At Robertsville, bordering East Fork of Poplar Creek, five tests taken five feet from the creek showed concentrations of between 9 and 15 parts per million.

East Fork of Poplar Creek is one of the creeks where 450,000 of the 2.4 million pounds of lost mercury is believed to have leaked from DOE's secret Y-12 weapons plant between 1950 and 1977.

Jefferson and Robertsville junior high schools are on opposite ends of town.

In tests in the Greenview Estates subdivision, which also borders Poplar Creek, 10 tests of soils immediately adjacent to the creek show concentrations between 1.8 and 35 parts per million.

Samples of air in the area showed no evidence of me according to a cover letter by J.F. Wing, the Energy D ment's director of safety and ronmental control.

Union Carbide Corp., whi erates the Y-12 plant and otl cilities under contract to the department, did the 1977 which concluded that mercu leaked into East Fork of Creek.

OR schools alerted to mercury in soil

By ROGER KING
Journal State Reporter

OAK RIDGE — Soils tested near two Oak Ridge junior high schools show evidence of toxic mercury contamination, but the school superintendent Tuesday said no action will be taken by the schools on the alleged problems until more information is known.

U.S. Department of Energy reports detailing environmental contamination from mercury spills show high levels of the toxic chemical in soil near Robertsville Junior High and Jefferson Junior High schools.

The soil sample mercury levels at Robertsville Junior High are as much as 40 times greater than the federal Food and Drug Administration's acceptable limit of 1 part per million.

"Since school is out, I'm waiting for an assessment from people who know a lot more about mercury than I do," Superintendent Robert Smallridge said.

The testing was completed on June 3 and 10 by Oak Ridge Associated Universities at the request of DOE and the city of Oak Ridge. Still to be processed are samples from the garden of the Oak Ridge YWCA.

The two reports discuss monitoring programs requested by the city of Oak Ridge after the Depart-

See Mercury, Page A7

Group to file suit against DOE

By TERRY MCWILLIAMS
Journal State Reporter

A Knoxville-based environmental group will file suit against the Department of Energy over toxic chemical releases from its Oak Ridge operations unless the agency complies with state and federal environmental laws, the head of the organization said Wednesday.

The Legal Environmental Assistance Foundation will notify Energy Department Secretary Donald Hodel of its intent today, said Gary Davis, who heads the environmental office.

Davis, in a letter to Hodel, alleged that the Energy Department's Y-12 nuclear weapons plant has violated 21 federal and state hazardous waste laws. Specifically, the environmental group accused DOE of:

- Discharging toxic chemicals, including PCBs, into Bear Creek without a permit from the Environmental Protection Agency (EPA).
- Releasing mercury and other hazardous wastes from the Y-12 plant without permits over up to 100 discharge points.
- Dumping acids, toxic metals and solvents into ponds, which may seep into the groundwater, without permits.
- Failing to report its activities or keep records required for complexes that generate hazardous waste.

The letter to Hodel said the "continued violations" of the Clean Water Act and the federal Resource Conservation and Recovery Act pose a substantial hazard to the environment and public health surrounding Oak Ridge. It also said the national security aspects of DOE's operations does not make the complex "immune from the environmental laws that govern every other industrial facility in this nation."

DOE contends that the Atomic Energy Act exempts many of its Oak Ridge operations and their radioactive and hazardous wastes from key federal environmental laws.

Davis said an agreement signed two weeks ago by EPA, the state and DOE regarding the Y-12 facility "does not sufficiently address" environmental violations.

Federal law requires that agencies must be notified of an intended lawsuit 60 days before it is filed.

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Do You

Mercury

— From Page A1

of the mercury was discharged into East Fork Poplar Creek.

Tennessee state officials have undertaken a testing program in East Fork Poplar Creek to look for a "laundry list" of contaminants, including not only mercury but uranium, plutonium, lead and polychlorinated biphenyls (PCBs).

The undertaking of such a comprehensive testing program was on the agenda six years ago when TVA officials met with representatives of the Energy Research and Development Administration. However, the testing was never done, with each side arguing that it was the responsibility of the other.

But ERDA was not conducting a comprehensive monitoring program in Poplar Creek, other than to take some samples during the spring. And that's why it wanted TVA to evaluate mercury levels in the area.

"TVA has had, at least since 1970, an on-going surveillance in reservoirs and river systems," Wing — now an official of the Department of Energy — said Wednesday. "It was my feeling that it would work better if they would include this area in their existing mercury surveillance program. We (DOE) are not in the mercury surveillance business. We have other functions to perform."

Following the May 1977 meeting, Wing received a letter in early 1978 in which TVA declined to become involved.

"The essence of the letter was that they could not include our area in their surveillance program because of budget constraints — and they did not think it was that big a problem anyway," Wing said.

Operations, said in a memorandum dated May 6, 1977.

Surfacing of the Wing memorandum follows the disclosure last month that the Department of Energy cannot account for 2.4 million pounds of mercury used at the Oak Ridge's Y-12 plant for production of nuclear weapons during a period from 1950-77. A report prepared in 1977 and declassified last month estimates that about 475,000 pounds

See Mercury, Page A9

TVA told of OR mercury in '77

By LOUIS PECK
and ADELL CROWE
Gannett News Service

WASHINGTON — The Tennessee Valley Authority was informed more than six years ago of high levels of mercury in fish in a stream crossing the federal nuclear facility at Oak Ridge, but failed to take action to further investigate the problem, it was learned Wednesday.

TVA, the nation's largest public utility, learned of the mercury problems in East Fork Poplar Creek at a May 1977 meeting with officials of the federal Energy Research and Development Administration (now the Department of Energy), according to documents obtained by Gannett News Service.

TVA officials contacted Wednesday acknowledged the meeting, but said they considered it ERDA's responsibility — not TVA's — to pursue the matter.

At that same meeting, officials in charge of the Oak Ridge facility expressed a desire to keep news of the elevated levels of mercury under wraps, the documents show.

"This type of information could reach the local public in an aberrant perspective and cause undue concern over non-existent health hazards or relatively insignificant environmental matters," J.F. Wing, chief of the environmental protection branch at ERDA's Oak Ridge

The Oak Ridger

35TH YEAR—NO. 96—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, JUNE 2, 1983 25 CENTS

Really rare

On its second day, June 1983 has indeed produced one of its legendary rare days. Sunny, breezy and warm today, partly cloudy tronight, chance of afternoon thundershowers Friday. High today, low 80s; low tonight, upper 50s; high Friday, upper 80s.

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COUTANT
'We're not trying to restrict development.'

EQAB asks developing caution

By CATHERINE FOSTER

The city's Environmental Quality Advisory Board wrestled Wednesday night with a motion recommending a "moratorium" on construction in the floodway along East Fork Poplar Creek, but ended up asking for an "assessment" before building begins instead.

EQAB's meeting was devoted almost entirely to the recent disclosures by the Department of Energy that 2.4 million pounds of mercury is unaccounted for at the Y-12 Plant. An estimated 475,000 of the pounds has found its way to East Fork Poplar Creek, which has been closed to fishing since last November.

In discussing development along East Fork Poplar Creek, EQAB chairman Charles Coutant said, "Until shown otherwise, we should assume there is a risk out there." But, he added, "We're not trying to restrict development. We're just trying to get the studies done to find out if we've got a problem or not."

EQAB member Larry Rackstraw, who is also a member of the Oak Ridge Regional Planning Commission, commented, "We don't experience rampant growth along East Fork Poplar Creek."

Coutant said that DOE officials had been invited to attend Wednesday night's meeting, but had declined because they had made a presentation to a joint meeting of EQAB and Oak Ridge City Council on May 23.

"Did they ask if we might have questions?" asked board member Shelby Smith-Sanclare, who, with Coutant, expressed "disappointment" that DOE was not represented at the meeting. Ms. Smith-Sanclare said that DOE's absence represented "a one-sided type of approach."

DOE spokesman Wayne Range, asked about those comments this morning, said, "I thought we had an understanding with EQAB on providing information for their needs. We tried today to get in touch with Chuck Coutant, who was out of the office. We certainly want to discuss with him cooperative efforts and relationships."

Coutant suggested at the meeting that DOE consider paying for testing — perhaps through the University of Tennessee Hospital laboratory — of hair in persons who believe they might be contaminated with the mercury. Human hair is the best monitoring point for mercury and other heavy metals, Coutant said, and persons could have their own analyses done if they like. "In fact," Coutant said after the meeting, "if a person's hair is long enough, you can trace the amount of exposure year by year." A reading of 60 parts per million in hair is considered the "critical limit," Coutant said.

Range, asked about Coutant's idea this morning, said that the agency "will discuss that pro-

(Continued on Page 7 No. 1)

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posal and try to assess how meaningful such a testing program might be from a technical standpoint."

Coutant also said that state officials will be holding a "scoping meeting" to discuss future studies and plans for cleaning up the mercury on June 23, and EQAB has been invited to send a representative to the meeting. He pointed out that cleanup may be a problem, because the action of cleaning up the mercury may stir up more problems than currently exist. The Tennessee Valley Authority "is cleaning up a creek contaminated by mercury, damming it up and scooping out the sediment. It's not known if they're doing more harm than good."

In a related development, documents obtained by Gannett News Service show that TVA was informed of DOE's unaccounted-for mercury in 1977, following the drafting of a formal report by Union Carbide. TVA took no action on the disclosure, considering it DOE's responsibility, Gannett reported.

At the EQAB meeting, Coutant shared with his fellow board members a report on mercury from the National Academy of Sciences, which reports a Swedish study indicating that ingesting 30 micrograms of mercury per day is a safe limit; a World Health Organization report says that 200 micrograms per week is a safe limit.

Asked how many contaminated fish that would mean, Coutant said there is a formula for figuring that, but he did not know. "I would think it would be a lot of fish, eaten on a regular basis," he said.

Mercury in natural waters "usually runs about 0.02 to 0.06 parts per million," Coutant said, adding that mercury is found in three forms — elemental mercury, which was released by DOE; inorganic compounds; and methyl mercury, which can be harmful. Coutant said that the elemental mercury apparently is turning into methyl mercury over time, which has caused the concern when it was found in fish in East Fork Poplar Creek.

Coutant pointed out that in the world's most serious mercury contamination, in which Japanese fishermen died, "it was methyl mercury that was released in that situation, which was taken up by the fish. In our situation, elemental mercury had to be converted to methyl mercury, which is a long process."

The "hooker," Coutant said, is that "methyl mercury is rapidly taken up by biota," which can be part of the pathway to humans.

"Non-fish-eating terrestrial animals get low exposures, and therefore a relative low risk," Coutant said.

He added that the mercury levels in East Fork Poplar Creek was "well below" those levels that cause "direct toxic effects."

But Coutant said that levels of mercury found in plants growing in contaminated soil should be tested to see if there are levels of concern. No gardens are grown along East Fork Poplar Creek, but some of the sediment from the creek bank may have been removed to other garden sites. "There's just no way of knowing that," he said.

Once the mercury cleanup begins — and DOE and state and federal officials are negotiating what work needs to be done — it will take a while for mercury levels in fish to disappear, Coutant said, pointing out that mercury has "a half life" of two years. That means that, once the mercury contamination has stopped, it will take two years for the mercury level to drop by half, then another two years to drop by half again.

Air Force to probe problems

WASHINGTON (AP) — The Air Force said today it has suspended a series of tests of its air-launched cruise missile to investigate problems which developed in two launches.

"This temporary test suspension will not affect the continuing deployment of the air-launched cruise missile, nor the operational status of the Strategic Air Command units now equipped with the missile," the Air Force said in response to inquiries.

The air-launched cruise missile has been deployed with B-52 bombers stationed at Griffis Air Force Base, N.Y., and Wurtsmith Air Force Base, Mich.

This missile, which can be equipped with a nuclear warhead and which would be fired at Soviet targets up to 1,500 miles from its launching B-52, has an important role in the U.S. strategic arsenal.

"The missile itself has been thoroughly tested," the Air Force said, in referring to a series of workouts before the missile became operational.

The problems, which the Air Force said are being investigated, developed during test launches Dec. 19 and May 24. The Air Force called these "partial successes."

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OR monitors also to search for plutonium

By TERRY McWILLIAMS
Journal Reporter 5-26-83

OAK RIDGE — East Fork Poplar Creek, which absorbed as many as 500,000 pounds of mercury over a 27-year period, should be monitored for toxic plutonium as well as other discharges, state and federal officials said Wednesday.

The stream, which originates near the Department of Energy's Y-12 nuclear weapons plant, represents one of the areas affected by pollution discharged from the DOE's facility in Oak Ridge.

"The fact that it (plutonium) is there and it is in measurable quantities merits further investigation," said Barry Sulkin, a water quality officer with the State Department of Public Health.

Officials from the state and the federal Environmental Protection Agency met Wednesday to iron out differences between their own plans to monitor and clean-up environmental hazards.

They negotiate with the Energy Department today in an attempt to produce a "memorandum of understanding" among the three agencies. The agreement will eventually allow authorities to issue discharge permits to replace those that expired in 1980.

DOE documents from 1974 and 1983 mentioned plutonium, a man-made, radioactive heavy-metal, in a list of contaminants found in both Bear Creek and East Fork Poplar Creek, which eventually drains into the Clinch River.

The April 1983 document, a response to the state's notice of Y-12's failure to comply with environmental laws, shows that traces of plutonium were found in four different locations of Bear Creek at six different times between December 1981 and May 1982.

Earlier testing, done as part of the "Preliminary Aquatic Survey of East Fork Poplar Creek and Bear Creek" in 1974 by Oak Ridge National Laboratory, found plutonium in four locations along East Fork.

The 1983 data were not analyzed, but the 1974 study of sediment samples showed higher plutonium levels than were found in an area near the Los Alamos, N.M., national laboratory, in a study two years earlier. The Oak Ridge levels were less than those obtained in another "background" study of sediment at Mound Laboratory in Miamisburg, Ohio.

"Obviously, the East Fork levels are greater than the Los Alamos levels and less than the Mound levels," the study said. "The large separation must be considered, however, and the East Fork situation would not seem to be a concern at the present time. Close future checks would be advisable."

Dr. John Hursh, a radiation biologist at the University of Rochester, said it appeared from the data that plutonium did not present a hazard in the sediment at the low levels detected.

"This isn't a large concentration of plutonium," Hursh said. "It may be higher than the sediment in Los Alamos, but so what? You've got to consider the pathways to man. Plutonium is not a source of radiation to fishermen sitting on the bank of East Fork."

He said the contamination pathways to man have to be considered, as well as the level. "If it's picked up by algae, the fish eat algae and people eat fish," said Hursh.

Plutonium was left off an EPA list of parameters suggested by the state, but state officials explained the omission may have been a typographical error, listing lead (with its scientific symbol "P") instead of plutonium ("Pu"). Both should be tested for, said David McKinney, the state's Water Management Division Knoxville office manager.

James L. Foutch, the Department of Energy's deputy chief counsel for legal services, said DOE would agree to a sampling program for the element.

EPA official Howard Zeller, the assistant regional administrator for policy and management, said the plutonium survey will serve to determine if hazards exist with that element.

Zeller said the disclosure that DOE lost 2.4 million pounds of mercury from 1950 to 1977 would change federal and state plans to study that hazard. They'll discuss that with the DOE today.

"We should look farther downstream, do further sampling, and look at the groundwater supply. There were large amounts of mercury spilled onto the ground," he said. Air samplings, to detect mercury swept from the ground into the air, will also be conducted, he said.

State Recommends DOE Close 'Hot' Lake

y FRANK MUNGER
ews-Sentinel staff writer

OAK RIDGE — The Department of Energy has been cited for a wide array of illegal or undesirable waste practices involving radioactive and chemical pollutants at Oak Ridge National Laboratory (ORNL).

These practices have contaminated area waters and damaged the environment, officials of the state Department of Public Health and Environment charged in the "notice of noncompliance" sent to the federal agency last week.

Although the action against ORNL was expected, some of the specifics are surprising.

Most startling was the state's apparent call for the closing of White Oak Lake, a 24-acre body of water that has been used since 1943 as a final settling basin for waste leaving the lab via White Oak Creek.

"White Oak Lake is the most radioactively polluted lake in at least the state of Tennessee and perhaps the nation," the state's report said. "Plans and implementation schedules must be established to eliminate this source of contamination rather than allow releases indefinitely."

Radioactive elements found in the lake's water and sediments include cobalt, strontium, cesium, europium, plutonium, americium, curium, tritium, ruthenium, antimony, zirconium, iodine, cerium and niobium.

White Oak Creek winds through the lab grounds, receiving waste discharges from various sources, before it flows into the lake. White Oak Dam separates the lake from the Clinch River, which receives discharges during flow periods.

Based on an Aug. 23 inspection of ORNL facilities and grounds by state and U.S. Environmental Protection Agency officials, the report identifies many areas of concern and outlines steps that need to be taken to correct them or to lessen their impact.

A similar notice was issued early this year for Y-12 and led to a wide-scale probe, including a congressional hearing and studies by a multi-agency task force to determine the magnitude of the problems. Extensive cleanup efforts at the nuclear weapons plant are underway, while additional work awaits approval or funding.

In its ORNL report, the state said lab officials have been studying options for "dealing with the problem of contaminants in White Oak Lake." Among them was the one the state apparently prefers.

"Based on the information available, cleanup and closure would seem an appropriate action," the report said. "In its present condition, White Oak Lake presents an ongoing and primary source of radioactive contamination of fish, water and sediments of the Clinch and Tennessee Rivers."

Wayne Hibbitts, acting chief of DOE's Environmental Protection Branch, said the White Oak Lake recommendation "was a little bit of a surprise."

"Instead of looking at alternatives such as stabilizing that (radioactive) material in place or other alternative means of keeping White Oak Lake sediments from reaching the river, they came out and said their preferred option is to close it," Hibbitts said.

He is not convinced closing the lake is the best idea.

"It's feasible to the extent that it could be done, given enough money and resources of various sorts," Hibbitts said. "But I think it's obvious that, before one chooses that alternative, all reasonable impacts and environmental impacts be studied.

Other major points in the report:

- Dozens of waste-discharge points at ORNL need to be placed under permit, so they can be monitored and controlled. The lab's National Pollution Discharge Elimination System permit has expired, and negotiations have been under way with state and EPA officials for some time on newly adopted guidelines.
- A number of waste holding and settling ponds need to be lined in order to prevent seepage into groundwater and, subsequently, area streams.
- Old radioactive waste burial grounds have been closed, but their contents continue to seep into groundwater. "The migrating wastes are moving mostly toward White Oak Lake, where many are trapped but some are released to the Clinch River," the report said.
- New burial grounds in current use are much better, but not "state of the art." ORNL procedures must be improved "to the level used by private industry," the report said.
- "Activities at ORNL have resulted in significant pollution of area streams (on the DOE reservation)." Citing previous lab studies, the report noted violations of standards for ammonia, mercury, nickel, cadmium, zinc and copper. In addition, levels of mercury, chromium and zinc are elevated in White Oak Creek downstream from the lab facilities.
- About 18 miles of pipes carrying low-level radioactive waste to a treatment facility from various sections of ORNL are in disrepair and need to be fixed or replaced. Leakage from these pipes is contributing to groundwater contamination, the report said.
- The sewage treatment plant is providing inadequate treatment and, because of the overload, untreated waters are going directly into White Oak Creek on some occasions. The News-Sentinel reported earlier this year that the treatment plant was the chief culprit in hundreds of permit violations in the past decade.

Issues

Does waste from Oak Ridge facilities present a health risk?

I worked at the Y-12 plant for several years, and I don't think it is a real bad threat.

P.S. Lewis, 65, 123 Normandy Road

I live right on Popular Creek and have never been concerned about it (chemical waste.)

Vicki Collins, 32, Oliver Springs

I've lived here 30 years right with it, and I don't think there's anything wrong.

Bobbie Goodwin, 47, Valparaiso Road

I've grown up here and been around it (chemical waste) for a long time. I haven't seen any ill effects from it.

Sam Hull, 39, 108 Moylan Lane

Terri Wilson, 24, of 145 Nesper Road, who also said she feels the chemicals are a great risk, said she would like to see some studies done of the incidence of birth defects

)R operations still blanketed in secrec

y RANDELL BECK 11-30-93
ournal Reporter

When you share a ride home, prominent billboard said, don't hare your secrets.

"Shhhhhh," said another, show- an Oak Ridge worker with his i_er pressed to his lips.

The government, obsessed with crecy, drummed it into workers. d so it became a religion with m also. And that philosophy, orn during World War II and nur- ured in the Cold War, is still alive ay.

Some of the workers, now fear- ng mercury affected their health, lame secrecy as much as the gov- ment itself.

"They tell me I'm still not sup- osed to say some things about ercury, and what we did with it," 'd Eddie Stair, who worked at the apons plant between 1953 and 3. "We signed a paper that said e wouldn't say nothing about hat happened in those buildings."

Those are the two Alpha build- gs, where vast amounts of mer- ury was an important part in a emical separation process. The rcury's deadly fumes exposed ndreds of men and women. Even a worker thought the mercury as damaging his health, he ldn't talk about it.

Not to his friends. Not to his wife. Not to his doctor.

Another worker in the Alpha ilding, Charlie Robinson, likes to l a story about the new car he ought in 1955. It was, Robinson re- alls with fondness, a beauty.

It was a Mercury.

"But I couldn't tell anybody that d bought a Mercury," Robinson says now. "Mercury was a classi- d word. You couldn't say it, even the plant. It was secret."

He could only call the car what workers called mercury — solvent. So, he says, "I'd tell a guy, 'Hey, I bought a new car.' And then he'd ask me what kind I bought. I had to say I got a 1955 Solvent."

Others, though, are more cautious in their criticism of secrecy.

Jack Case, director of the weapons plant for 13 years, says the emphasis on secrecy may have kept some workers from telling their doctor about mercury exposure. But he says it was imperative that secrecy surround some activities at the plant.

During the 1950s, when the mercury process was in use, "75 percent (of the workers) didn't know what we were making. . .Probably the Russians knew before most of the people in the United States."

Although the emphasis on secrecy has declined recently, the government still uses national security as the reason for not revealing the kinds of chemicals used at the weapons plant and the into East Fork Poplar C

For years, state of the Department of Er the chemicals — and th each — discharged

called industrial ditch. The turns into East Fork when it government property. If the of those chemicals were re the energy department sai emies of this country could out what went on inside the p

Ever sensitive to argume national security, state o backed down.

'We feel uneasy. We wonder if something could be happening to

Mercury poisoning can affect every organ in the body

From Page A1

sured many times higher than what is considered safe by the American Conference of Governmental Industrial Hygienists.

The mercury was a crucial ingredient in a chemical process called COLEX, which isolates the element lithium which was important in building nuclear weapons.

That process has ended, but vastly more complicated chemical processes have taken its place. And just like they were in 1953, Y-12 workers still are sworn to secrecy. "National security is at stake.

Thanks largely to state officials, the extent of mercury contamination in the Alpha buildings is no longer a secret. The men and women who worked there now know what mercury can do. And that worries them.

"We feel real uneasy," Robinson said. "We wonder if something could be happening to us right now and we don't know it. Back in the 1950s, nobody told us the mercury would hurt us."

■■■

But the old Atomic Energy Commission, which owned the three plants in Oak Ridge, and Union Carbide Corp., which ran them for the agency, knew mercury was dangerous. Government scientists concede they tried to reduce levels of vapors in buildings where mercury was used. Knowing the potential danger, scientists tested some workers for mercury in their urine.

The day in 1953 that Charlie Robinson began working in mercury — first in the pilot plant named 9201-2, then in the massive Alpha buildings — people in Minamata, Japan, were suffering the first symptoms of chronic mercury poisoning.

An industry there had dumped mercury in a bay where people caught fish for food. The poisoned fish, mercury expert D'Itri said, transferred the chemical to people. Many of those people have died.

So in the early 1950s, remembers Jack Case, former weapons plant director, "It wasn't a mystery what mercury could do. . .When I was there, you would see puddles of mercury quite often" in the pilot and Alpha buildings.

That didn't surprise Case. During the 1950s, half the world's mercury was in Oak Ridge, he says.

Thousands of men and women worked in the buildings between 1953, when the process first was tested, and 1963. They breathed mercury vapors. It spilled on them. Many times workers only wore rubber boots for protection. Sometimes, they wore masks.

But at no time, those workers were told, could they tell anyone about the mercury. If your teeth began falling out, and your dentist asked what you did at work, you couldn't tell him.

■■■

In the 1950s, mercury levels in the air at the pilot and Alpha buildings was almost always too high.

The recommended level for mercury in the air is .01 milligrams per cubic meter. Depending on temperatures and where the samples were taken, the levels often averaged 50 and 60 times that. The instrument used by scientists would only measure up to 2 milligrams per cubic meter. Sometimes mercury vapors were so thick that, on the chart where they entered the reading for that time, they could only write: "off the scale."

In the 1950s, the Atomic Energy Commission tested mercury levels of some workers' urine. Between 1955 and 1957, records show, many workers had high levels of mercury in their blood. In the first quarter of 1956, for example, 441 of the workers sampled had mercury levels above what is now considered safe.

But exposure to mercury vapor was not the only problem for workers.

Pipes frequently burst at the Alpha buildings, remembers Monroe Stout, a former weapons plant employee. The mercury would go everywhere. Drains in the building often would clog, he says, preventing the silver liquid from going into the basement.

The mercury just collected in vast, elusive pools on the floor.

"I'd be wading around in that stuff up to my knees," recalls Stout, now the owner of Lucky's grocery in Oak Ridge. "I don't know anyone who got in more of it (mercury) than I did."

So this year, after the Department of Energy revealed there had been five major spills at the weapons plant since 1953, Stout decided he'd better find out what mercury is.

"I looked it up in the dictionary," says Stout. "It said it was a poisonous substance. Hell, they never told me about it."

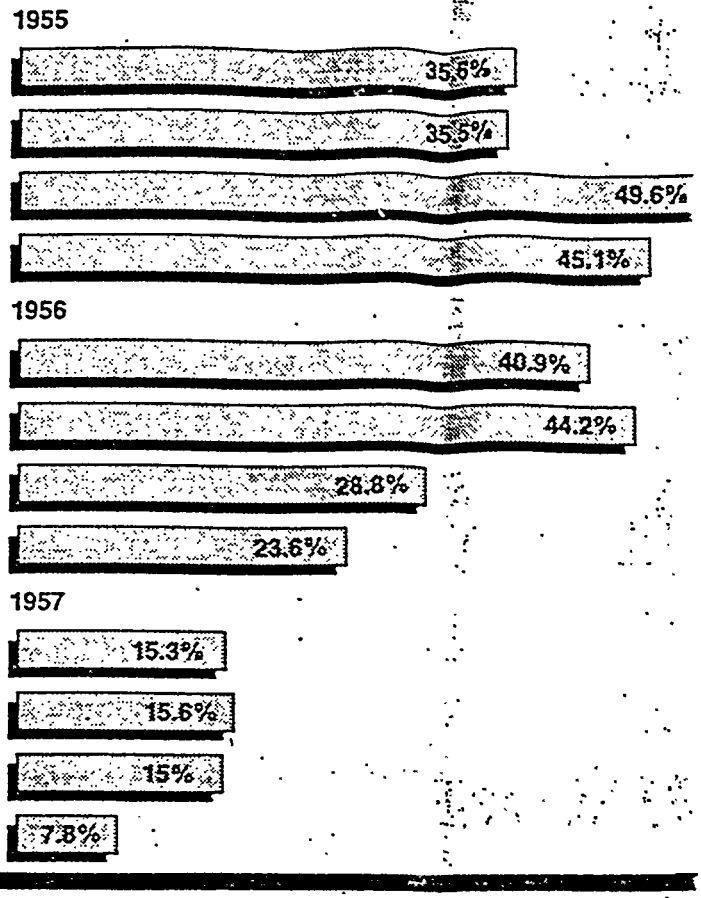
Other workers, now r blame mercury for their ill James C. Wilson of Lake Cit he received brain damage bleeds and headaches fron levels of mercury.

Wilson's attorney, Brian mell, said a doctor at Var University in Nashville ha nosed Wilson's illnesses as to mercury poisoning. Wils year filed a federal court against the Department of I seeking compensation.

The suit was dismissed r when Trammell learned Wils must seek compensation c from the Department of I Trammell said he soon wil formal request with the g ment. If that request is uns

The danger zone

In the mid-1950s, workers at the Y-12 weapons plant wer tested for the concentration of mercury in their urine. Th numbers below represent the percentage of workers test whose urine contained more than 0.2 milligrams of merc per liter of urine. Anything above that is considered dang ous. Results shown are by quarters.



and neighbors. Many, caught up in their mission, do not. The candor of those conscientious

America, i had fallen

OR plants 'above law'

Shielded by security, U.S. issued false reports on danger of hot wastes dumped into streams

By TERRY McWILLIAMS
and RANDELL BECK
Journal Reporters

At any cost

12\1\83

The spoiling of Oak Ridge/Part 4

From the watchtower near the top-secret government plants, the Army guard kept constant vigil.

It was 1944 in Oak Ridge.

America was at war.

The rush to produce the first atomic bomb had turned a giant tract of East Tennessee hill country into an island shrouded in secrecy and surrounded by soldiers.

After World War II, activities at that island remained the exclusive business of the federal government. Cold War tensions demanded that secrecy. Frantic production of nuclear weapons couldn't stop.

Byproducts of that intense activity — hazardous chemicals and radioactive waste — polluted streams and seeped into the groundwater.

It happened under the protective umbrella of national security.

Shielded by national security, the federal government issued false and misleading reports to potential environmental regulators and the public. It avoided state and federal laws that tried to control pollution at Oak Ridge.

Today, the Oak Ridge reservation remains largely untouched by the outside world and by state and federal agencies that have intensified efforts to stem the flow of chemicals into streams and rivers.

Operated by Union Carbide Corp. for the Department of Energy, the Oak Ridge plants still cling to a patchwork of presidential exemptions and legislative waivers to continue often-archaic disposal practices, documents show.

The federal government, through a variety of laws and agencies, has helped reduce the pollution of private industry. But it has failed to clean up its own mess.

While the federal government expects private industry to comply with those laws, it stands firm on its own special mission of scientific research and producing nuclear warheads.

"There is a mind-set over many years that federal agencies are not part of the world," said Michael Bruner, the state's assistant commissioner for Health and Environment. "Even though they (DOE) are sitting on a piece of geography in East Tennessee, they more or less see themselves as totally independent in their production and their environmental regulation.

"That's always given us little peons around the country real heartburn," he said.

■ ■ ■

In 1954 Congress said the Atomic Energy Commission, which ran things in Oak Ridge, could regulate itself. Winning the Cold War, Congress said, was a national priority. Nothing else mattered. There were no laws to protect the environment.

"The people who handled hazardous materials worked with the AEC and decided what was the best thing to do," recalls Jack Case, a former weapons plant director.

They followed one important rule: dilution is the solution to pollution. Things you dump in the creeks, the government said, eventually would mix with the water. And so they dumped tons of waste.

There were attempts in later years to regulate activities at Oak Ridge. Some members of Congress, for example, tried to force the Nuclear Regulatory Commission to regulate the burial of radioactive waste at government plants. Those attempts failed when the energy department claimed national security would be threatened under such a plan.

It was not difficult for the energy department to claim exemption from pollution controls. Since the first environmental controls were established more than 15 years ago, presidents have waived them for certain agencies considered essential to national security.

Even Jimmy Carter, who encouraged Congress to pass environmental laws to fight pollution, exempted some federal plants that built nuclear weapons. In April 1978, when Carter signed that exemption, Oak Ridge officials re-

See Security, Page A6

Things were rotten at Oak Ridge, only the newspapers didn't say so

Mercury poison buried in secrecy

By RANDELL BECK
Journal Energy Reporter

When 50,000 pounds of mercury spilled into the earth March 25, 1966, in Oak Ridge, the Knoxville newspapers reported the news.

The spill, readers of the Knoxville News Sentinel and The Knoxville Journal learned, had cost the government and taxpayers $277,000.

But they didn't learn that mercury can damage streams. They did not read that mercury, in large enough doses, can kill.

Readers of the two newspapers got one side of the story — the government's side.

Because the three Oak Ridge plants employ so many residents in Knoxville and surrounding communities, it never was too popular to question the federal government's activities there. And to most newspapers, it was anti-American to second-guess the important mission at Oak Ridge. Building nuclear weapons was patriotic.

Even if a newspaper wanted to report what actually occurred in Oak Ridge, the government's wall of secrecy made it almost impossible. It was easier to believe what the official spokesmen said.

"You had to deal with (the government's) public relations people," said Tom Sweeten, managing editor of The Knoxville Journal. Many operations at Oak Ridge, Sweeten said, "were secret and still are secret. . .You couldn't even get into the plants without being cleared."

As for environmental problems, Sweeten said, "There was never any question raised (about pollution)."

And that's the way it was until 1981, when Ed Slavin, an unassuming young reporter for The Applachian Observer, moved to Clinton, nine miles east of Oak Ridge. Slavin and Ernest Phillips, publisher of the weekly newspaper, had heard some stories.

"We'd heard that (the Department of Energy) was running things out there without any controls at all," Slavin remembers. "We started investigating discharges of radioactivity and how they had dumped massive amounts that were now in the Clinch River."

Starting from scratch, Slavin and Phillips looked into charges that the government had ignored all laws in their handling of chemicals. The newspaper, with a circulation of 4,500, reported that radioactive waste had reached the Clinch River.

The Observer's portrait of operations at Oak Ridge was far different than the one in Knoxville and Oak Ridge newspapers. Government officials, angry at the new enemy, labeled Slavin a crackpot.

"It felt kind of lonely out there," Slavin recalls. Anderson County was a "closed society. Some people would call me and ask me why I was picking on Union Carbide and the department. . .Some people didn't like what we were doing."

Then in early 1982, Slavin heard that large amounts of mercury had been spilled at Oak Ridge during the 1950s and 1960s. He filed a formal request for those records, citing the U.S. Freedom of Information Act. Nearly a year later, the records were released.

More than 2.4 million pounds of mercury, the records showed, had spilled into streams near the weapons plant. The secret was out. Knoxville newspapers reported the news. They still are.

"I was glad to see that happen," said Slavin, now a law student in Memphis. "It made me feel pretty good." The mercury report forced most newspapers and television stations to begin covering Oak Ridge.

> It felt kind of lonely out there. Some people would call me and ask me why I was picking on Union Carbide and the department- . . .Some people didn't like what we were doing.
> **Ed Slavin**

Even The Oak Ridger, the newspaper Slavin accuses of being a press release for the government, covered the story. But Tom Hill, publisher of The Oak Ridger, said it has always been that way.

"Our first job is to report the news," Hill said. "If you go back and review our coverage (of the government) you would agree" that the Oak Ridger has reported government news fairly.

But Hill, one document shows, has done more than merely report the news. He has helped the federal government avoid the scrutiny of state officials.

Early in 1976, state Rep. Jimmy Naifeh of Covington introduced a bill to authorize a Tennessee De-

[illegible] of sites [illegible] had been [illegible] of Union Car- [illegible] ailment officials, the [illegible] memo shows, it was decid- [illegible] convince Mr. Naifeh that introduction of such a bill would be precipitous at this time."

According to the memo, Hill agreed to drive to Nashville to convince the legislator the bill wasn't needed and that Oak Ridge burial grounds were safe. The tactics apparently worked. A March 2, 1976, postscript to the meeting said Naifeh's resolution had been withdrawn.

Today, Hill said he does not recall the meeting. He said he could have spoken to Naifeh about the bill, but only as a "matter of information. I have never done anything to keep the state off the (government's) back."

Mercury found in soil by OR civic center

Journal Nashville Bureau

NASHVILLE — The Department of Energy has found mercury in soil between the Oak Ridge Civic Center and Municipal Building at levels more than 35 times greater than state guidelines for cleanup.

November DOE environmental reports show mercury levels in soil between the buildings up to 440 parts per million (ppm). The state Department of Health and Environment two weeks ago set an interim action level of 12 ppm for mercury in soil "to protect human health and provide a level at which a decision for action could be made."

DOE environmental experts met Monday with city officials to discuss their latest findings. Oak Ridge City Manager Lyle Lacy said the data will be turned over to the city's Environmental Quality Advisory Board, which will begin Thursday deciding what action is needed at all sites exceeding the state guideline.

He said the latest contamination was found in a grassy strip between the city buildings adjacent to a small drainage creek. With the exception of a paved walkway linking the buildings, he said there is seldom much pedestrian traffic through the area.

"We don't think it's anything siginificant enough to limit access to the area over the short term," Lacy said.

"We believe those samples reflect where new sewage interceptor lines were put in a couple of years ago. The contractor apparently used sediment dredged up from East Fork Poplar Creek in his filling and landscaping," said DOE spokesman Wayne Range.

Range said DOE will cooperate with the city in deciding if action is required to either clean up or restrict the area. The agency has made no recommendation on what action should be taken.

DOE-city-EQAB mercury confab 11-29-83

By RICHARD MERRITT

Officials from the Department of Energy and the city met Monday afternoon to discuss future actions concerning the mercury levels in Oak Ridge.

The meeting, which was requested by DOE, involved City Manager Lyle Lacy; Charles Coutant, chairman of the Environmental Quality Advisory Board; Bill Kaspar, assistant DOE manager for safety and environment; and Wayne Hibbitts, from DOE's safety and environmental control division.

The meeting was held in Lacy's office in the Municipal Building.

The meeting was called in light of the recently established state guideline for the concentrations of mercury in soil, which has been set at 12 ppm (parts per million). Before this time, there were no state standards for the amount of mercury that could safely be in soil.

"The purpose of the meeting was to decide a course of action, a work plan," Jim Alexander, DOE spokesman, said this morning. "We want to be in the role of assisting the city in going out to the property owners," to test mercury concentrations.

"The city is looking to EQAB (Environmental Quality Advisory Board) to develop a work plan," Alexander continued. "EQAB will then come back to Lyle Lacy with a recommended approach."

EQAB meets Thursday at 7:30 p.m. in the Municipal Building, and it is expected that the group will formalize a work plan for submission to the city.

"I envision that EQAB will on Thursday night put a little detail on how the review of the specific sites in excess of the quidelines should be handled," Lacy said this morning, "and how the field work ought to be done."

The three parties — DOE, EQAB and the city — will establish a team that will look at the sites with concentrations of 12 ppm or higher of mercury, and then decide the next course of action.

"We envision providing technical expertise to a team of individuals from the city, DOE and our contractor," Alexander said. Lacy said that Jim Harless, city code enforcement officer, will represent the city on this team.

"Once we make an initial assessment as to yes, there may be remedial, corrective or no action required, we envision involving the state at that point,"

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Mercury

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Alexander explained.

Alexander went on to explain that action will not necessarily be taken on every parcel or piece of land that has a concentration of 12 ppm or higher.

"It all depends on the land use," Alexander said of possible corrective measures. "We could have a parcel that exceeds 12 ppm, but it could conceivably make the land less useful (by taking action) than doing nothing. A great emphasis will be placed on how the land is used."

Lacy said that once the team comes up with a recommendation, "the state will review the conclusions."

Once the state has provided its input, Lacy said he expects that it would then be up to DOE "to assist in implementing the remedy."

The Oak Ridger

35TH YEAR—NO. 147—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, AUGUST 12, 1983 25 CENTS

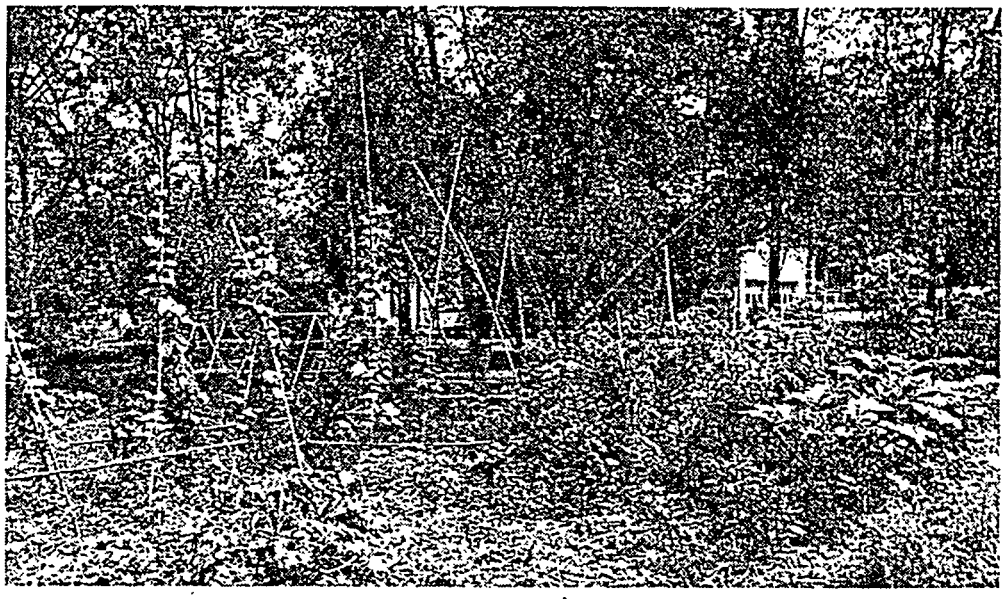
Formalizing Y-12 clean-up pact

By ROBIN HEAD INTEMANN and CATHERINE FOSTER

The Department of Energy and the Tennessee Department of Health and Environment are in the process of strengthening the agreement between them on cleaning up environmental problems at the Y-12 Plant.

James L. Foutch, DOE attorney, said this morning that DOE and health department officials met on Thursday, and will meet again next week, in an effort to "make more formal" the memorandum of understanding on cleanup activities.

"We decided that it looks like it will work, but we have to do some refining," Foutch said. The more formal agreement would be similar to a contract, in which DOE would agree to meet certain standards by certain dates.



A Colgate Road garden where samples of vegetables were tested for mercury levels.

Foutch said that DOE, the health department, the Environmental Protection Agency will meeting in Knoxville on Thursday of next week report on progress so far.

Meanwhile, state officials are examining data issued by DOE on monitoring of area sites for mercury contamination. A major part of the cleanup effort involves the 2.4 million pounds of mercury unaccounted for from operations at Y-12.

Bonnie Bashor of the state health department's epidemiology division said this morning that one problem the state is having is that there are no federal standards for mercury contamination in vegetables.

But, she added, the results she's seen so far don't cause her any alarm.

"This is a difficult thing to come up with, because it's a brand new question." Ms. Bashor said. "There's been very little vegetable sampling done, and we simply don't have a good feeling for numbers yet."

She added that the federal standard for mercury levels in fish tissue — 0.10 parts per million — cannot be extrapolated for use in vegetables.

Looking at the figures reported Thursday by DOE from a garden on Colgate Road, Ms. Bashor said, "Yes, I probably would eat those vegetables. Fish that you buy in the store would have a much higher concentration of mercury, and they are generally considered safe. I wouldn't have a problem with those vegetables."

The figures reported in the Colgate Road sample are 0.003 ppm for broccoli heads, 0.006 ppm for spinach leaves, 0.0054 for tomato stems and leaves, and 0.005 for squash and zucchini.

DOE is not revealing the specific addresses from which the samples were taken, but the Colgate Road garden in question was found to belong to the Hugh Kinsers, 104 Colgate Rd. Kinser said today that the report in The Oak Ridger Thursday was the first he heard of the results of samples.

"We have tried to get a report and some interpretation of the these findings," Kinser said. "I don't know of any danger, but I am still trying to get more information."

Kinser said the reason he contacted the city to take samples was because of the information obtained from samples collected at Jefferson Junior High School. After reading of the results of those samples Kinser said he became concerned because his garden is about 3/4 of a mile from the school and the run-off of a creek runs past his yard. But he sees no danger. "At first I was concerned about the run-off, but I realize now that we're not in any are of high concern.

"We're still eating the vegetables, but I'm not doing any canning this year as I normally do," he said. "I am curious for the health of my family, but I really don't think there is a danger."

Most of the soil results seen in the latest samples are "about what we expected," Ms. Bashor said. "The highest levels have been from creek sediment; we expect them to be the higher amounts.

So levels such as 0.11 ppm, found in garden soil on Grandcove Lane, or even 6.2 ppm, found in garden soil along Oak Ridge Turnpike, are "in the range of what we'd expect to find anywhere" that hadn't sustained large mercury losses, Ms. Bashor said. Again, there are no federal standards for mercury levels in food, but Ms. Bashor agreed that levels greater than 300 ppm, which have been reached in some sections of Oak Ridge, are among the highest levels ever found in the U.S.

She added that the level of 150 ppm found in yard soil on West Lincoln Road was apparently creek sediment moved as fill dirt

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The Oak Ridger

35TH YEAR—NO. 152—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, AUGUST 19, 1983 25 CENTS

More data on area mercury levels told

Another round of data on mercury levels throughout the Oak Ridge area has been released, with the figures continuing the trend of higher levels in the floodplain of East Fork Poplar Creek and in fill dirt used for sewer line construction or gardens in the area.

The highest levels are found in the yard at Jefferson Junior High School, where fill dirt from dredging East Fork Poplar Creek was used. The levels at the two sampling sites are 285 and 240 parts of mercury per million.

Levels of 220 ppm were found in the floodplain of East Fork Poplar Creek, near Quincy Avenue.

While there are no federal action levels for mercury in soil, a level has been proposed and is under consideration by the Food and Drug Administration. That level is 3 ppm of mercury, and several sites throughout Oak Ridge were found to have mercury levels higher than that.

Those locations are at Robertsville Junior High School, where the ball park is subject to flooding from East Fork Poplar Creek (22 ppm and 17 ppm); in a garden on North LaSalle Road near the LaSalle Park (76 ppm, 29 ppm and 12 ppm); dry sludge from the old sewage treatment plant (22 ppm and 13 ppm); and dry sludge from the wastewater treatment plant (15 ppm).

The levels here compare with those found in Lenoir City: Dry sludge from the sewage plant (6.6 ppm); soil and sediment from the Nelson Street stream bank (.09 ppm, .12 ppm and .16 ppm).

Dry sludge from the Knoxville Kuwahee sewage plant was tested at 1.8 ppm and 1.6 ppm.

In Oliver Springs, soil and sediment from Poplar Creek were tested at .02 ppm, .04 ppm, and .01 ppm.

In Lake City, soil and sediment along Coal Creek were tested at .04 ppm, .06 ppm, and .01 ppm, according to the study by Oak Ridge Associated Universities.

Covering soil at schools

Precautionary measures in connection with mercury contamination of the soil in areas adjacent to Robertsville and Jefferson Junior High Schools is expected to be completed before the start of school August 29, Oak Ridge Schools Superintendent Robert J. Smallridge said today.

Smallridge said the Department of Energy will begin covering areas at the schools with six inches of uncontaminated soil during the week of August 22. The areas will be stabilized and seeded.

The decision to take the temporary measures for the areas at the two schools was worked out during a meeting Thursday afternoon among representatives of the City, Tennessee Department of Health and Environment, and DOE.

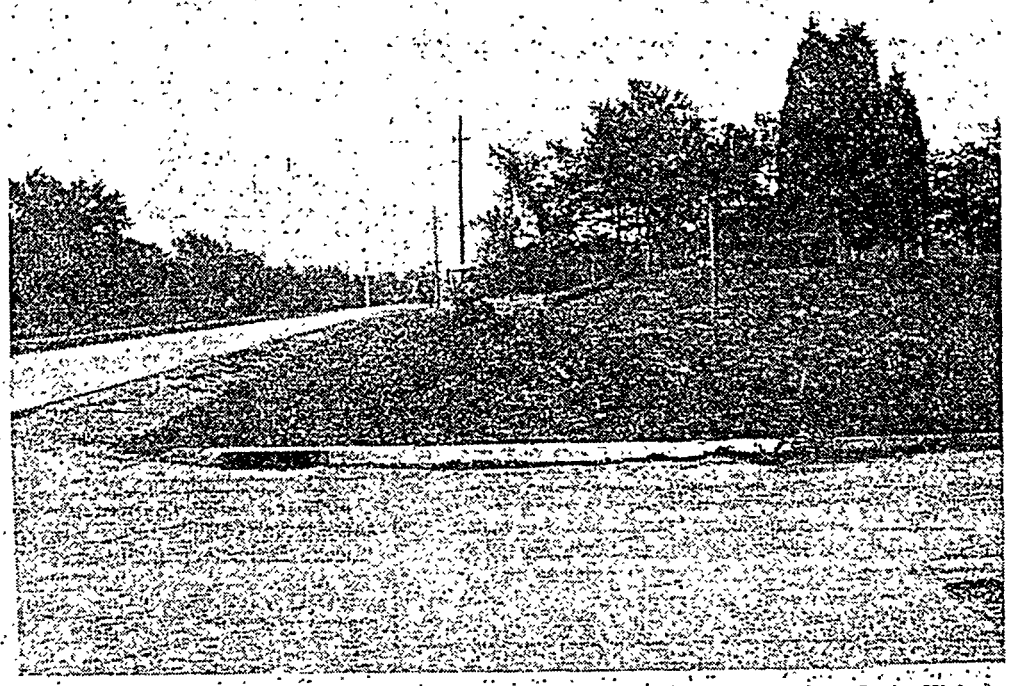
"Additional studies are being designed by the state to better define the type, extent, degree and potential health effects impact of contamination in both locations. Once this is accomplished, all interim protective measures will be reviewed and revised if necessary for more permanent ones," Smallridge said.

"In the meantime, it is felt that these measures will afford maximum protection to persons at both locations with minimum disrpution to the school system," he said. "It was felt prudent to take these steps despite the fact that we have been assured that there is no immediate health concern."

Surface levels of mercury ranging up to 360 parts per million have been detected in a sewer line belt adjacent to Jefferson and levels up to 130 ppm have been found in the flood plain area at Robertsville.

The Oak Ridger

35TH YEAR—NO. 155—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, AUGUST 24, 1983 25 CENTS



As of noon today, work had progressed about 60 feet on the site in front of Jefferson Junior High School.

Robertsville work delayed —

Begin spreading fill dirt on mercury-contaminated soil at JJHS

Contractors today began to fill the area near a drainage ditch at Jefferson Junior High School where mercury-contaminated soil covers the ground.

A subcontractor of Rust Engineering, Roehl Construction Company, Inc., is to cover the area with 900 cubic yards of fill material, Jim Alexander, information officer for the Department of Energy, said today. The fill material is "clean" dirt, he added.

The area at JJHS has been marked off with stakes and the job is expected to be completed by Monday — the first day of school.

Covering the practice ballfield at Robertsville Junior High School where mercury-contaminated soil has also been found has been delayed until the week of Sept. 11, Alexander said.

This decision was made in order to allow for the completion of a topographical survey of the ballfield. This is now being conducted by DOE engineers, he said.

The survey is being conducted in order to assure that the fill is placed in such a fashion that it does not create puddles or drainage problems, Alexander said. He said city and school officials have agreed to this decision and that DOE has been "willing to do it both ways," referring to filling the area before the first day of school.

Robert Smallridge, superintendent of Oak Ridge Schools, said steps have already been taken to assure students will not be on the practice field. Smallridge said Tom Hayes, principal of RJHS, has been contacted and Hayes has in turn spoken to the teachers.

Smallridge said he wished to "reserve judgment" on whether other actions would be taken to make sure no students go on the field.

In addition to placing the fill dirt, the contractor will grade and seed the field. Smallridge said the wants the job "done right so it ends up improving the field."

The Oak Ridger, Tuesday, 7/5/83

It will be a mercury hearing

A congressional hearing investigating the loss of 2.4 million pounds of mercury from operations at the Y-12 Plant is scheduled for Monday.

The hearing, before two subcommittees of the House Science and Technology Committee, will begin at 9 a.m. Monday at the American Museum of Science and Energy and continue all day, according to the directors of both subcommittees.

Jack Dugan is director of the Subcommittee on Energy Research and Production, chaired by Rep. Marilyn Lloyd, and Bob Nicholas is director of the Subcommittee on Oversight and Investigation, chaired by Rep. Albert Gore Jr. Both representatives are Tennessee Democrats.

An earlier debate over whether the session would be a hearing (in which witnesses can be sworn) or a briefing has been settled, according to Nicholas. "I had a conversation with Mr. Gore and Mrs. Lloyd, and the decision was that we will hold a

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hearing. We are planning on swearing in witnesses, and taking their statements for the record," Nicholas said.

But, according to both Nicholas and Dugan, it's not known if a Republican member of the committee will be attending. Dugan had earlier said that without a minority member on the committee, Reps. Gore and Lloyd would hold a briefing instead. But Nicholas said today that a formal hearing will be held, with or without a third committee member.

The hearing will be investigating the delay in release of a 1977 classified report, which shows that 2.4 million pounds of mercury is unaccounted for from operations at Y-12. Most of the losses apparently occurred during the early 1950s, when a process for separation of lithium, which involved mercury, was used in development and production of hydrogen weapons. Because of the secrecy of the project, the mercury spills were not reported publicly, although a 1966 spill, of 100,000 pounds of mercury, was reported by the news media.

The Department of Energy declassified and released the 1977 report in May, following a request for information by the state Department of Public Health, which is concerned about levels of methyl mercury in fish and soil along East Fork Poplar Creek. That creek has been closed to fishing since November.

Scheduled to testify at the hearing are:

Former Mayor A.K. Bissell, who worked at Y-12 for many years; Joe La Grone, manager of DOE's Oak Ridge Operations office; Nathaniel Revis, director of the Oak Ridge Research Institute, which did much of the soil and water analysis; Charles Coutant, environmental scientist and chairman of the Environmental Quality Advisory board; Stan Auerbach, director of the environmental sciences division at Oak Ridge National Laboratory;

Jimms Fuzzell, resident of the Scarboro community; Ben Adams, president of the Roane-Anderson Economic Council; Jeff Ginsburg, president of the Oak Ridge Chamber of Commerce; Jo Ann Garrett of the Committee of 50, a group organized to draft plans for city growth and development; S. David Freeman, director of the Tennessee Valley Authority;

Steve Gough, former ORNL staff scientist, the "whistleblower" whose unofficial sampling along the creek led to the official sampling and the closing of the creek to fishing; Ed Slavin, editor of the Appalachian Observer; Dean Rivkin, member of the board of the Legal Environmental Assistance Foundation; Frank D'Itri, of the University of Michigan's Institute of Water Research; Michael Bruner, assistant commissioner of the state health department; and Howard Zeller, assistant regional administrator of the U.S. Environmental Protection Agency.

The Oak Ridger

35TH YEAR—NO. 122—482-1021 . OAK RIDGE, TENNESSEE, FRIDAY, JULY 8, 1983 25 CENTS

'Concern, no alarm' on mercury hearing eve

By CATHERINE FOSTER

The Environmental Quality Advisory Board will tell a congressional hearing Monday that its members are "concerned, but not alarmed," over recent disclosures by the Department of Energy that 2.4 million pounds of mercury are unaccounted for from operations at the Y-12 Plant.

Two congressional subcommittees will hold the day-long hearing beginning at 9 a.m. at the American Museum of Science and Energy. The two subcommittees, both part of the House Science and Technology Committee, are the Subcommittee on Energy Research and Production, chaired by Rep. Marilyn Lloyd, and the Subcommittee on Oversight and Investigations, chaired by Rep. Albert Gore Jr.

COUTANT

The two Tennessee Democrats are expected to be the only two members of Congress on the subcommittee panel. "We have made efforts to obtain members of the minority (Republican) party to serve on the panel, and have so far been unsuccessful," said Bob Nicholas, staff director of the Oversight and Investigations subcommittee. "We will go ahead with the hearing. All the witnesses are planning on being there, and we'll be ready to go at 9 a.m."

DOE officials will be on hand at the hearing to explain how the mercury was lost over the years during weapons work at Y-12, and experts on mercury effects are also scheduled to testify, as are a number of community and business leaders.

EQAB members examined their testimony at a meeting Thursday night at the Municipal Building. The testimony, to be presented by EQAB chairman Charles Coutant, who is also an environmental scientist at Oak Ridge National Laboratory, reads:

"Our board views the recent revelations about the magnitude of mercury releases from the Y-12 Plant and the level of contamination of East Fork Poplar Creek and its environs with great interest and deep concern, but not alarm. We definitely view questions of soil and water contamination within populated areas of our city to be within the scope of our responsibilities.

"We have studied the information on mercury in the local environment as it has been released by the Department of Energy or other bodies. We have attempted to place these emerging data in the context of worldwide knowledge of mercury hazards through use of reports such as the 1978 National Academy of Sciences study, 'An Assessment of Mercury in the Environment' and other professional publications. Since the Oak Ridge National Laboratory is one of the world's most prominent research institutions in the study of mercury contamination of the environment, we have excellent resources for surveying worldwide information available locally.

"As a result of our review through May of this year, we advised City Council of our concern. We asked that all possible efforts be made to augment the limited data available on mercury in East Fork Poplar Creek with studies to evaluate any hazards to health and welfare of residents of the city and surrounding areas. We further recommended that a thorough contaminant assessment be made to determine likelihood of risk prior to any further changes or developments in the creek or its floodway and floodway fringe

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zones. A copy of our letter to City Council is attached as part of this testimony. We are pleased that such studies appear to be under way through an interagency task force.

"We are chagrined that the Department of Energy and its predecessor agencies did not offer a more timely and thorough disclosure of the information available and that there was not a more responsible job of inventorying mercury levels in the creek following the large spills. One result of silence was that the city of Oak Ridge was allowed to unknowingly use highly contaminated creek sediments as topsoil for a sewer relocation project within the past year. Knowledgeable precaution would certainly have been preferable to unwitting dispersal of something potentially hazardous.

"We return to the statement that we are concerned but not alarmed. The hazards of mercury in general are fairly well known compared to many toxic wastes. Although concentrations of total mercury in creek and floodplain sediments (and certain soils elsewhere that have received creek topsoil) are very high relative to normal concentrations throughout North America, there appear to be few chances for the mercury to be passed to human populations at rates which would endanger health.

"We assume as our standard for acceptable mercury intake rates the numbers cited in the National Academy study which derive largely from work by Sweden and the World Health Organization. They suggest 30 micrograms methyl mercury per day or 200 micrograms per week as acceptable for a standard 70 kilogram human. For total mercury, the estimate is 300 micrograms per week. These levels are at least a factor of 10 below levels which actually caused observable effects (that is, they include a 'safety factor.').

"Oak Ridgers would most likely receive the highest intake rate from eating fish from East Fork Poplar Creek. However, few fish of edible size occur in the most contaminated upper stretches of the creek, fishing was never practices extensively in the creek and, moreover, that activity is now banned. Although Oak Ridgers have been concerned about mercury uptake through garden soil obtained from the creek floodplain, published information from throughout the world indicates that uptake of mercury by plants such as vegetables or grass that would be eaten by cattle is low.

"Meat and other tissue samples were taken from an Oak Ridge steer that was pastured in the contaminated zone and the results show a low uptake through the food chain. Breathing of contaminated dust would rarely cause a weekly accumulation of gram amounts of solid material in the lungs, which would be necessary for the most contaminated soils discovered so far. These comparisons of limited environmental samples in Oak Ridge with known hazardous exposures do not argue for complacency, but they should quell alarm.

"Oak Ridge is not 'saturated' with mercury. We do have an unfortunate legacy of the past of both physical contamination and an attitude of silent complacency. Our board strongly recommends that the East Fork Poplar Creek receive a detailed study to determine where the contamination is, how fast it is moving downstream (and by what routes), what routes of transfer to human and animal populations need to be regulated, and whether cleanup measures are warranted. We are encouraged by the level of interagency communication and cooperation that now seems to be addressed to the problem."

The Oak Ridger

35TH YEAR—NO. 113—482-1021 OAK RIDGE, TENNESSEE, MONDAY, JUNE 27, 1983 25 CENTS

One Republican needed —

Still mercury hearing doubt

By CATHERINE FOSTER

Negotiations are still continuing with Republican members of two subcommittees of the House Science and Technology Committee in an effort to hold a hearing in Oak Ridge on possible pollution from the Y-12 Plant.

The subcommittees, chaired by Reps. Marilyn Lloyd and Albert Gore Jr., will be looking into recent reports that 2.4 million pounds of mercury is unaccounted for from operations at Y-12.

The hearing was originally scheduled for July 6 at the American Museum of Science and Energy, then moved to July 11, but that date, too, is in jeopardy, because minority members — that is, Republicans — are not available on that date, either, and a minority member of the subcommittees is needed to qualify the session as a hearing.

"The problem we're having now is that the Senate may complete work on the budget early, and be in recess until July 17," says Ric Ebersole, aide to Rep. Lloyd. "There is some sentiment in the House to remain adjourned until that date also." The House had originally planned to return July 11.

If a hearing date cannot be arranged, Reps. Gore and Lloyd will likely hold a "briefing" instead. The difference between a briefing and a hearing is that witnesses cannot be subpoenaed or sworn in during a briefing. Too, Ebersole explained, getting copies of documents and testimony printed at government expense from a briefing is difficult.

Ebersole said that the witness list still is not definite, but that 15 persons had so far asked or been asked to testify. They are former Mayor A.K. Bissell; Joe La Grone, manager of the Department of Energy's Oak Ridge Operations; Nathaniel Revis, director of the Oak Ridge Research Institute, which did much of the soil and water analysis; Charles Coutant, chairman of the Environmental Quality Advisory Board; Stan Auerbach, director of the environmental sciences division at Oak Ridge National Laboratory; Jimmy Fuzzell, resident of the Scarboro community; Ben Adams, president of the Roane-Anderson Economic Council; Jeff Ginsburg, president of the Chamber of Commerce; S. David Freeman, member of the Tennessee Valley Authority board of directors; Steve Gough, former staff scientist at Oak Ridge National Laboratory, the "whistleblower" whose unofficial sampling of East Fork Poplar Creek brought about the official sampling and the resultant posting of the creek for fishing; Ed Slavin, editor of the Applachian Observer; Dean Rivkin, member of the Legal Environmental Assistance Foundation board; Frank D'Itri, of the

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NOTICE! All Oak Ridge Bank of Oak Ridge locations (drive-in and lobby) open til 6 p.m. Thursday & Friday. ADV.

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University of Michigan's Institute of Water Research; Michael Bruner, assistant commissioner of the Tennessee Department of Public Health and Environment; and Howard Zeller, assistant regional administrator of the U.S. Environmental Protection Agency.

Meanwhile, Secretary of Energy Donald Paul Hodel has written to TVA board chairman Charles H. Dean, thanking him for bringing TVA's "experience with mercury-contaminated bodies of water to the effort which will be addressing the Oak Ridge situation."

TVA board members have accused DOE of withholding information on the mercury levels from TVA scientists, but Hodel, in his letter dated June 16, denies this.

Hodel said that the information provided to the state health department does not reflect "any refusal by DOE to provide all such data."

DOE's "most significant concern must be collection and release of any environmental monitoring data to insure that there is no compromise of public health as a result of the earlier release of mercury or any other hazardous materials associated with the operation of any of the DOE Oak Ridge facilities. This data is not classified, and has routinely been released to the Environmental Protection Agency, the state of Tennessee and the media," Hodel told Dean.

The Oak Ridger

35TH YEAR—NO. 101—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, JUNE 9, 1983 25 CENTS

Knox group says it may sue on mercury

A Knoxville-based environmental group says it will sue the Department of Energy if the agency doesn't get into compliance with state and federal environmental laws at the Y-12 Plant.

The Legal Environmental Assistance Foundation (LEAF) cites 21 violations of federal water pollution and hazardous wastes laws at the facility. DOE recently admitted that it cannot account for 2.4 million pounds of mercury lost during operations at Y-12.

"DOE says it is exempt from the federal and state environmental laws that every other industrial operation in this country must comply with," said Gary Davis, an attorney representing LEAF. "This position not only violates the law but also reflects the kind of cavalier attitude toward the environment which has resulted in incidents such as the huge mercury releases from the Y-12 facility."

Davis also charged that the May 26 cleanup agreement signed by DOE, the U.S. Environmental Protection Agency and the State Department of Public Health was "largely for public relations." He added, "It doesn't acknowledge that DOE has been violating any laws and regulations and doesn't require that DOE comply with environmental laws and regulations by any certain date. Although some of these violations have been occurring for years with the knowledge of (EPA and the state), neither of these agencies have taken enforcement action."

In a letter sent today to Secretary of Energy Donald P. Hodel, LEAF charged that DOE has:

- Discharged toxic metals, acids, PCBs and other chemicals into Bear Creek without a discharge permit;
- Discharged various pollutants, including mercury, from 50-100 points at the Y-12 Plant without discharge permits;
- Disposed of hazardous wastes containing toxic metals, acids and chlorinated solvents into unlined ponds without a permit;
- Failed to comply with any standards for reporting and record-keeping required for generators of hazardous wastes.

The lawsuit will be filed in 60 days if satisfactory action is not taken, Davis said.

Mercury hearing or just 'briefing'?

A congressional hearing on the mercury losses at the Y-12 Plant now seems contingent on the participation of a Republican — any Republican, as long as he or she is a member of one of the House subcommittees trying to conduct the hearing.

That hearing had been scheduled for July 6 in Oak Ridge, but, apparently, Republican members of the two subcommittees — none of whom are from Tennessee — aren't interested in journeying to Oak Ridge just after the Fourth of July weekend.

"What we've got now is a choice between two things," according to Jack Dugan, director of the Subcommittee on Energy Research and Production, one of the two subcommmittees planning the hearing. The other is the Subcommittee on Oversight and Investigations; both are part of the House Committee on Science and Technology. The first is chaired by Rep. Marilyn Lloyd, D-Tenn., and the second by Rep. Albert Gore Jr., D-Tenn.

If a Republican member of either subcommittee will agree to attend, the hearing will be held on July 11 at the American Museum of Science and Energy, Dugan explained. If a Republican won't agree to come, then Reps. Lloyd and Gore will hold a "briefing" at the Museum on July 6, he said.

REP. GORE

REP. LLOYD

The difference between a briefing and a hearing is that in a hearing, witnesses are sworn in for their testimonies, and the subcommittees have subpeona power, Dugan explained. In a briefing, witnesses are asked to testify, but it is not sworn testimony.

If a briefing is held instead of a hearing, the July 6 date has been chosen, apparently because both Reps. Lloyd and Gore will be in the state for the holiday.

New spill mercury levels drop sharply

Levels of mercury in New Hope Pond generated by a major water leak at the Y-12 Plant are dropping sharply, according to test results from water samples.

The most recent results available — from samples taken at 3 p.m. Thursday — show levels of 13 parts of mercury per billion parts of water.

The figures reached a level as low as 7 ppb at 10:15 a.m. on Thursday, according to Union Carbide spokesman Harvey Cobert.

Workers are continuing today to pump part of the water caught in a basement — about 400,000 gallons of the one million gallon spill. Levels of mercury in the contained water reach as high as 1197 ppb.

The water spilled about 3 a.m. Wednesday when a pipe broke under the Alpha 4 building, which was one of the buildings used for lithium isotope separation during the 1950s. Alpha 4 was one of the buildings from which spills of mercury occurred during that time. The Department of Energy last month confirmed that a total of 2.4 million pounds of mercury is accounted for from those operations.

Mercury levels reached 99 ppb at their highest level — nearly 50 times more mercury than federal regulations. That figure was reached about three hours after the leak was halted.

The mercury release is slowly thinning and some of the contaminated water is to be pumped into tank trucks and placed in storage on the Y-12 grounds.

The rupture in the 12-inch water line caused clean water to mix with the mercury that has over the years collected under the building.

Cobert said the leak was stop-

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ped after about 30 minutes, although some contaminated water flowed into the creek.

"That was where we were most concerned because it goes into the community," Cobert said.

He said the first sample taken from the pond's outfall showed contamination levels of 7 parts per billion. He said the state mandates a maximum 5 ppb, while the federal government mandates 2 ppb.

By 5:30 a.m. Wednesday, the level had risen to 8 ppb and at 6:45 a.m. the level was 99 ppb, Cobert said. Later in the morning, the level had dropped to 79 ppb.

By late afternoon Wednesday, the levels fluctuated between 27 and 37 ppb, he said.

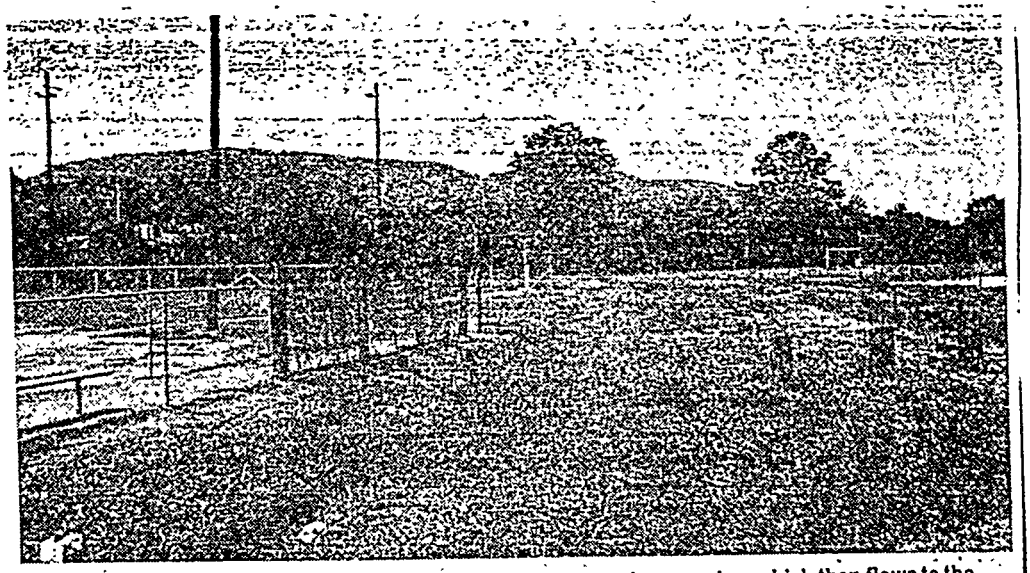
Samples taken Thursday showed levels between 7 ppb and 13 ppb, Cobert said today.

"Naturally, we're unhappy about the high levels," Cobert said. "But the creek is posted for fishing, and we see no immediate health danger."

Meanwhile, a task force comprised of Department of Energy, Environmental Protection Agency, state health department and Tennessee Valley Authority representatives met Thursday to begin planning for cleaning up the mercury contamination.

Members of the group will be looking at the area where mercury levels have been found to see what, if any, "pathway to man" exists for the mercury. That would include high mercury levels in areas where food is grown or animals graze.

The meeting was the first of several planned over the next year or two as cleanup plans are drafted.



A ditch running alongside the ball field collects runoff from heavy rains, which then flows to the creek.

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Levels found in the creek at Robertsville measure from 0.20 to 0.35 ppm, well below the federal concern level of 1.0 for water.

DOE has also sampled air quality at Robertsville, the Jefferson tennis courts, and at Big Turtle Park, and, according to Jerry F. Wing, chief of DOE's environmental branch, "No mercury was detected in any of the samples analyzed."

The areas that have been tested so far — and the things tested — include the following:

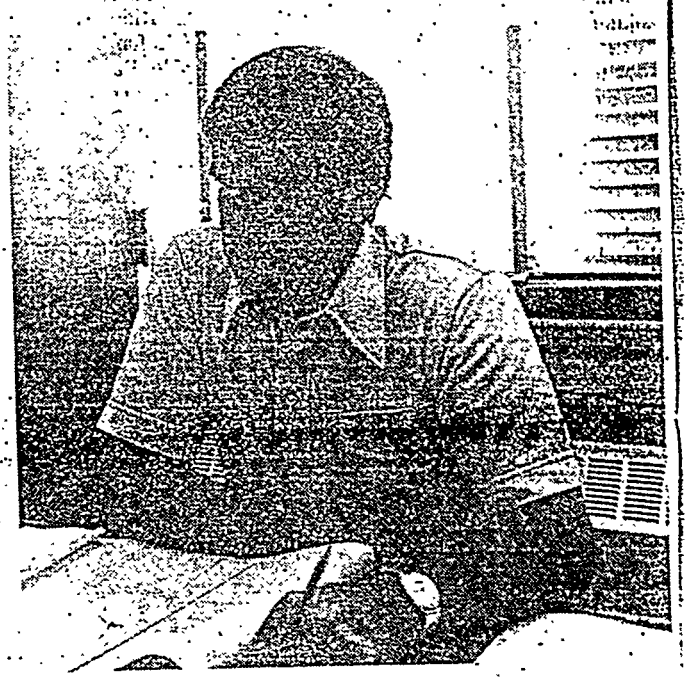
• Fairbanks Road, near Jefferson Junior High School, for soil;

• Scarboro community, for water and turtles;

• Poplar Creek, for fish, with only two fish out of 90 showing levels greater than 1.0 ppm;

• Greenview Estates, for soil, creek water, and creek sediment;

• Robertsville Junior High, for creek water, soil and creek sediment.



Hayes in his office this morning.

ficult because of the lack of a federal standard. "There are just no comparison values," Cothron said. "That's a problem not only with mercury, but with other compounds. With fish, with water, we have levels, and the level of losses from Y-12."

He added, "I think people should take normal sanitary precautions," Cothron said. "Don't let your children eat dirt, as they are sometimes wont to do. If you work in the dirt, wash

The Oak Ridger

35TH YEAR—NO. 107—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, JUNE 17, 1983 25 CENTS

Scarboro mercury meeting

A meeting for Scarboro Community residents on the potential mercury contamination in creeks that run through that area and other parts of the city has been scheduled at Spurgeon Chapel Church at 7:45 p.m. Wednesday of next week.

The potential contamination prompted disclosure of 1977 reports last month of the release of 2.4 million pounds of mercury between 1950 and 1977. The Union Carbide Nuclear Division reports showed that 475,000 pounds of mercury were lost in East Fork Poplar Creek.

The Department of Energy, at the request of local residents, has conducted several tests in areas throughout the city. Two wells in the Scarboro area on Tuskegee Road were tested by DOE. As of June 15 the results of the tests were still not made public.

Councilman E. H. Upton, who will serve as moderator for the session, requested the briefing which will be presented by DOE's Oak Ridge Operations.

Joe La Grone, manager of DOE's Oak Ridge operations, will speak, after which William R. Bibb will give a status report on DOE's efforts in connection with the situation. Additional in-

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formation will be provided by Nat Revis, president of the Oak Ridge Research Institute, on testing he has performed for DOE and the medical significance of mercury in the environment.

Following the presentations, residents will have an opportunity to ask questions regarding their concerns on this topic.

The Oak Ridger

35TH YEAR—NO. 92—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, MAY 27, 1983 25 CENTS

New charge DOE ignored warning

Another scientist has charged that the Department of Energy chose to ignore warnings of dangers from mercury contamination from the Y-12 Plant.

Jerry Elwood, of Oak Ridge National Laboratory's environmental sciences division, said that he conducted a study in 1977, calling for major investigations of East Fork Poplar Creek.

Elwood's study was completed within three days of a Union Carbide report that showed 2.4 million pounds of mercury was lost from the Y-12 plant between 1950 and 1977.

His comments follow charges by Steve Gough, former ORNL scientist now working in Virginia, that he had done some unauthorized sampling of the creek that led to the studies that closed the creek to fishing last November.

Elwood didn't sample East Fork Poplar Creek, but in his report on the area he said, "Sediment data shows that Bear Creek and East Fork of Poplar Creek are potential sources of elevated mercury concentrations in Poplar Creek and the Clinch River."

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The Oak Ridger

35TH YEAR—NO. 105—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, JUNE 15, 1983 25 CENTS

TVA plans mercury clean-up

The Tennessee Valley Authority will clean up toxic mercury in its reservoirs, even if the contamination is within legal limits, an agency official says.

"Any amount that is open to the environment is unacceptable," said Ralph Brooks, assistant director of TVA's air and water resources division. Brooks will tell TVA's three directors Monday about plans to check reservoirs for heavy concentrations of mercury.

Checks of potential contamination were prompted by release last month of a 1977 report that showed 2.4 million pounds of mercury were released from the Y-12 Plant between 1950 and 1977.

The study by Union Carbide Nuclear Division showed 475,000 pounds were lost in East Fork Poplar Creek, which runs from the plant grounds through the city of Oak Ridge and into the Clinch River.

TVA officials are concerned

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mainly about Watts Bar Lake, which is formed by the Clinch near where Poplar Creek empties into it.

On May 26, the Department of Energy, which supervises the Oak Ridge plants, signed an agreement with the Environmental Protection Agency and the state of Tennessee to tighten pollution controls at Y-12.

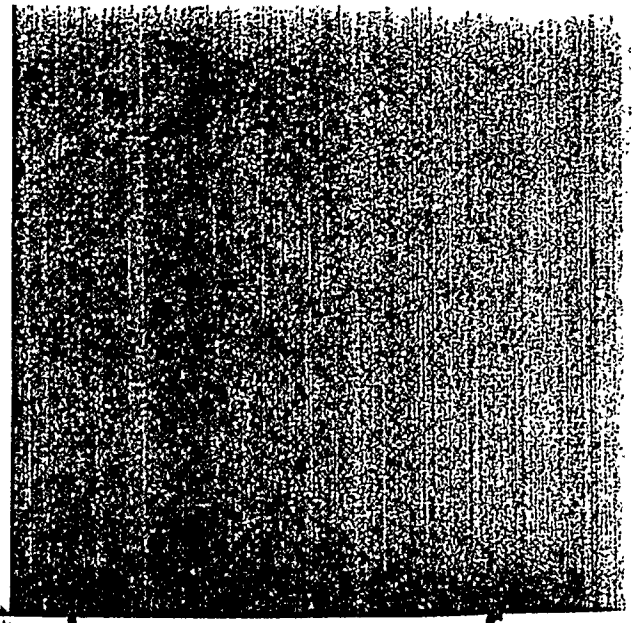
The Tennessee Valley Authority is involved because it supervises reservoirs in the region that eventually receive water from the Clinch River.

Brooks said TVA's three directors told agency staffers to "aggressively" investigate to what extent TVA reservoirs are contaminated.

"Let's say that we found levels in the Watts Bar Lake that are below FDA limits, but there's still mercury present," Brooks said. "It's got to be cleaned up because it's going to be magnified in the food chain eventually."

The Oak Ridger

35TH YEAR—NO. 90—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, MAY 25, 1983 25 CENTS



Expert sees years before Poplar Creek mercury-free

Cleanup of mercury and other contaminants in a creek that runs from a nuclear weapons plant through Oak Ridge may take years, a Tennessee Valley Authority specialist says.

As a start, a task force is being formed to study the contaminated East Fork Poplar Creek, into which about 475,000 pounds of mercury had been lost over the past 30 years.

Larry Clark, an environmental engineer who manages TVA's regional water quality program, said Tuesday the agency is joining the state, the Environmental Protection Agency and the Energy Department to study the problem.

He said TVA is involved primarily because of its technical expertise. "TVA has laboratory capability to analyze samples for mercury," Clark said. "The scope of our involvement hasn't been decided yet. We have to look at the data and see if any further data is needed."

A 1977 Energy Department report made public last week said about 475,000 pounds of mercury was released from the plant into the creek.

The release to the creek was among 2.4 million pounds spilled, leaked or mishandled during the 27-year period at Y-12. About 1.9 million pounds were leaked and settled into the earth, while about 30,000 pounds were released into the atmosphere, the report said.

Clark said TVA has worked on cleanups before, including the contaminated North Fork Holston River, beginning at Saltville, Va. "We've had quite a bit of success with the task force approach there," he said. Other TVA cleanup work was done in the early 1970s at Pickwick Reservoir in north Alabama and southwest Tennessee, Clark said.

"These problems just don't go away. We're talking about years."

Terry Cothron, an environmental engineer with the state Health and Environment Department, said the task force will first study sediment that has shifted in East Fork Poplar Creek.

"That's aimed at getting more current information than what we have," Cothron said. He said the study would look for various other contaminants, including uranium, thorium and suspected cancer-causing PCBs.

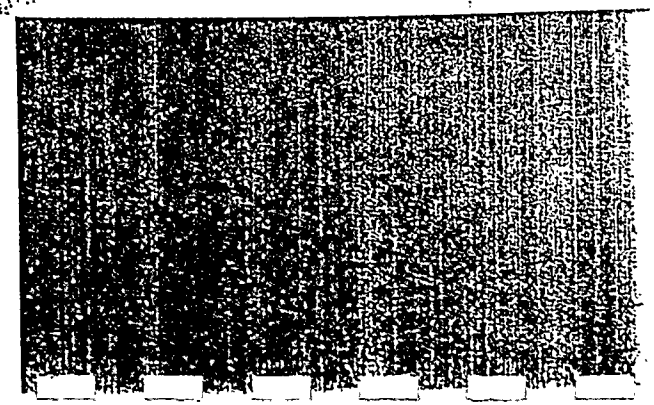
The state last fall posted signs along the creek warning people not to eat fish caught there. But the amount of mercury releases wasn't publicly known until the 1977 report was released May 17.

Cothron said state officials have found various environmental problems connected with waste disposal at the Y-12 plant, including waste-holding ponds that leak into nearby streams and an EPA permit that lists concentrations, but not quantities, of materials discharged.

Officials have said the mercury was used at the Y-12 plant primarily in the 1950s as part of a lithium separation process discontinued in 1963.

Cothron said he hopes the task force won't have trouble getting cooperation from the plant's managers.

"With the situation you have there, when national security and defense programs are involved, it sometimes is a little more difficult to get information," he said.



35TH YEAR—NO. 146—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, AUGUST 11, 1983 25 CENTS

New mercury data on topsoil, vegetables

The Department of Energy has released additional data on mercury contamination in Oak Ridge for evaluation by a task force monitoring the situation.

DOE's environmental monitoring program was started by the City in response to requests for samplings from residents and property owners.

Interpretation and evaluation of the data has not been offered. An Aug. 18 meeting with those participating in the task force monitoring program has been scheduled. In addition to DOE and the City, the Tennessee Valley Authority, the Environmental Protection Agency and the State of Tennessee are involved.

The latest sample data, released by DOE Wednesday, show levels ranging from 150 to 4.7 parts per million in soil tested on West Lincoln Road. The West Lincoln Road sample was a recheck on the same soil which indicated similar levels in previous tests.

Jim Alexander, a spokesman for DOE, said today that Oak Ridge Associated Universities does the survey of samples for DOE. The samples were taken from a pile of dirt brought in to use as topsoil. Alexander said that it not yet known where the soil was initially obtained.

The sample which measured 150 ppm was collected July 25. Other samples at this location measured 17.2 ppm and 4.7 ppm.

As a basis for comparison, background levels range from 0.05 ppm to 0.10 ppm.

In addition to soil samples some measurements of sediment, sludge, well water and vegetation were also taken.

Sediment on Wilberforce Avenue on the Scarboro Community measured 0.04 ppm, while sediment collected at Raccoon Creek measured 0.016 ppm.

Samples of sludge collected July 26 measured 9.4 ppm at the old Sewage Treatment Plant on Oak Ridge Turnpike and 11.0 on Cairo Road at the old Sewage Treatment Plant.

Vegetables grown on Miramar Circle were also sampled, including a pepper, tomatoes and squash measuring 0.020 ppm, 0.015 ppm and 0.007 ppm respectively.

Broccoli heads showed levels of 0.003 ppm on Colgate Road. Other vegetables were also sampled. Spinach leaves showed levels of 0.006 ppm; tomatoes (stems and leaves) showed levels of 0.0054 ppm; and zucchini squash showed levels of 0.005 ppm.

Young corn leaves sampled on Oak Ridge Turnpike showed levels of 0.31 ppm.

Blackberries grown along East Fork Poplar Creek showed levels of less than 0.002 ppm.

The Federal Food and Drug Administration considers levels of less than 0.05 ppm acceptable.

Following the disclosure of information in May related to the 2.4 million pounds of unaccounted for mercury, DOE has been releasing data as they are available from environmental monitoring.

A copy of the data results has been sent to the Oak Ridge Public Library. Data on concentrations of polychlorinated biphenyls (PCBs) found in soil and sediment at various loca

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ons at the Oak Ridge National aboratory were also analyzed.

The data show levels ranging rom 0.23 ppm to 465 ppm. The amples were taken from White Jak Creek, Fifth Creek, and ıround Building 4501 at ORNL.

The high level of 465 ppm was neasured at Fifth Creek Bank. The Fifth Creek bank area is near the location of a 1954 mercury spill at ORNL. Another area of Fifth Creek bank showed levels of 3.5 ppm.

The Oak Ridger

35TH YEAR—NO. 143—482-1021 OAK RIDGE, TENNESSEE, MONDAY, AUGUST 8, 1983 25 CENTS

Want more mercury interpretation

By CATHERINE FOSTER

Members of the city's Environmental Quality Advisory Board say they're a little disappointed that the Department of Energy, while generous with its data on amounts of mercury and other contaminants found throughout Oak Ridge, is not providing any interpretation of that data.

"I think it would be helpful," said Charles Coutant, EQAB chairman, at the board's meeting Thursday evening at the Municipal Building. "Looking at raw data like this just doesn't tell us anything."

But DOE spokesman Wayne Range explained Friday that DOE has a reason for not offering interpretations. "We discussed this with the State Department of Health and Environment, and the agreement was that we would provide the data and the state would provide the interpretation," Range said. "There was a feeling that it would have greater credibility if we did not provide interpretation of data."

Coutant said that the environmental improvement efforts at the Y-12 Plant, which has been the focus of much concern over the past three months, are being organized by an interagency task force including DOE, the Environmental Protection Agency, the state health department and the Tennessee Valley Authority. EQAB is serving as an adviser to that task force, Coutant explained, and while EQAB is a little frustrated by that group's slow movement so

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according to Coutant, is the fill dirt over the sewer line in front of Jefferson Junior High School. The fill dirt was taken from creek dredgings containing high levels of mercury, and sampling there has shown high levels in the fill dirt.

Coutant termed the situation there "psychologically sensitive," adding that he hopes a decision is made on whether or not the dirt should be replaced before the school year begins. Robert Smallridge, superintendent of Oak Ridge schools, and Joe La Grone, DOE operations manager, have been meeting on that subject, Coutant said, but no decision has been made.

Coutant and his fellow board members also questioned what other contaminants might exist in the Oak Ridge environment that had not yet been identified. And, questioned board member Robert Spore, even if they are identified, "will DOE tell us?"

Coutant agreed that could be a problem. "I don't know how you dig that out," he said. "DOE can always slap a classified label on it." One of the criticisms of DOE is that a 1977 Union Carbide report showing that 2.4 million pounds of mercury is unaccounted for from operations at Y-12 was classified for several years and was not released until

too slick for my blood," Spore said, referring to La Grone. "DOE is only as accountable as they want to be. They can be doing anything they want, and all we can do is wait for another Steve Gough to come along." Gough is the former environmental scientist from Oak Ridge National Laboratory who has been termed the "whistleblower" on the mercury situation here.

Coutant responded, "I guess all we can do is be skeptical."

In other action, EQAB members heard that the sale of the "Turnpike Green," the 12.5 acres located between the Federal Building and Oak Ridge Turnpike, has not been completed. The federal government, which owns the property, had declared it surplus, and offered it for sale at auction on July 20. The winning bidder, Butch Shelton, offered $168,000 for the property, and GSA is now considering whether or not to accept that bid.

EQAB, which opposed the sale, made no decision on any further action to try to stop the sale.

The Oak Ridger

35TH YEAR—NO. 142—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, AUGUST 5, 1983 25 CENTS

Fish kill in creek near ORNL

Separate leaks of a pesticide and some paint thinner are suspected as the cause of the deaths of 180 fish found in a creek near Oak Ridge National Laboratory.

And "seepage" from another old water pipe under the Alpha 4 building at the Y-12 Plant has officials there watching for an increase in mercury levels in groundwater.

The deaths apparently began Wednesday afternoon and ceased Thursday in White Oak Creek east of ORNL. Ed Aebischer, spokesman for Union Carbide Nuclear Division, said that about 130 fish were found killed just downstream of construction of an office building near the Holifield Heavy Ion Research Facility at ORNL, and the cause was traced to the use of Aldrin, a termite control pesticide that had been used at the construction site.

"The cause was apparently from runoff of the chemical," Aebischer said.

The University of Tennessee building, when finished, is to be used as an office-conference room center for visiting faculty members who use research facilities nearby, Aebischer said. Construction is being done by Chambers Builders, Inc., of Knoxville.

Late Thursday afternoon, in an apparently separate incident, about 50 fish were found killed near a culvert near Bethel Valley Road. At that location, a "white milky substance" later identified as paint thinner was found. That site is about a half-mile upstream of the construction site, Aebischer said, and it's not known where the paint thinner came from. "That area is pretty accessible," Aebischer said.

About 2000 gallons of water has been pumped from the creek in an effort to remove the paint thinner, he added.

The fish killed were all finger-sized fish called "creek chub," more specifically known as stone rollers and blacknose darts, Aebischer said.

In a separate incident on Thursday at Y-12, workers reported discovery of a leak in a 2-inch water pipe in the basement of the Alpha 4 building at Y-12, which was used in the 1950s and early 1960s for construction of hydrogen bomb parts.

The building, from which large amounts of mercury was spilled during operations, was the scene of a million-gallon leak June 22 and apparently the smaller leak in the building's basement had gone undetected since then.

Carbide spokeswoman Carol Grametbauer said the 2-inch water pipe leak was in the basement of the building.

Water from the June 22 million-gallon leak was released into a nearby settling pond, then allowed to flow into East Fork Poplar Creek.

Although the worst part of the leak was stopped in 30 minutes, Ms. Grametbauer said Thursday the 2-inch pipe apparently continued to leak undetected, leaving 10 inches of standing water in the building's basement. She said the leaks were blamed on the age of the building, which dates to World War II.

Blackberries along the East Fork of Poplar Creek where sampling was done near Tusculum Drive and Tulsa Road.

More mercury data

As expected, continuing samples of mercury contamination in Oak Ridge show the highest levels in sediment along East Fork Poplar Creek and in fill dirt used for sewer line construction.

The latest sample data, provided by the Department of Energy today, show levels ranging from 78 to 334 parts per million of mercury along Fairbanks Road, where fill dirt taken from sediment pulled from East Fork Poplar Creek was used.

Another sewer line beltway, [illegible] Drive, shows [illegible] to 65 parts per [illegible]

[illegible] taken from East [illegible] Creek shows levels [illegible] parts per million.

In the Scarboro area, levels range from a high of 440.0 ppm along East Fork Poplar Creek to a low of less than 0.01 ppm on Wilberforce Avenue.

Along the floodplain of Oak Ridge Turnpike, levels were found at 89.0 and 94.0 ppm.

Background levels range from 0.05 to 0.10 parts per million.

DOE has also reported new findings from vegetation grown in the area.

A tomato grown on Greystone Lane showed mercury levels of 0.003 ppm, and rose hips grown along East Fork Poplar Creek showed 0.022 ppm, according to the report.

A carrot grown on Colgate Road showed levels of 0.013 ppm, and blackberries grown along East Fork Poplar Creek showed less than 0.002 ppm. Watercress grown along East Fork Poplar Creek had levels of 0.024 ppm, according to the study.

On Valparaiso Road, an onion showed 0.008 ppm, and a green tomato had 0.006 ppm.

Levels of less than 0.05 ppm in food are considered acceptable.

Since DOE revealed in May that 2.4 million pounds of mercury are unaccounted for from operations at the Y-12 Plant, the agency has been releasing data as they are available from environmental monitoring. The data released today were collected by Oak Ridge Associated Universities.

TVA finds low mercury in Clinch River fish

7/19/83
The Oak Ridger

By ROBIN HEAD INTEMANN

The Tennessee Valley Authority can be added to the growing list of those who assess the mercury situation in this area as posing no immediate health hazard.

"We don't see this as an immediate health hazard," Larry Clark, manager of the TVA regional management program, said Monday. "However, we do see signs that the mercury is in the fish in the water tested."

About 136 fish were collected from the Tennessee River portion of Watts Bar Reservoir and the Clinch River arm June 16 and 17. The fish, which included channel catfish, white crappie, blue gill and largemouth bass, showed "low level" mercury contamination.

The results of the TVA survey were released Sunday. A classified report made public in May showed that 2.4 million pounds of mercury were lost from the Y-12 Plant over a 20-year period.

"Levels of mercury in the fish in the Clinch River arm were higher than in the Tennessee River portion. This indicates that there is some mercury in the fish and we don't know for sure if we're seeing an increase," he said. Clark explained that TVA water quality staffers tracked the water back upriver to the DOE area from which the mercury was released into the Clinch River at East Fork Poplar Creek.

Clark said that the levels of mercury in the fish were negligible, or less that 0.1 parts per million. The Federal Food and Drug Administration's recommended limit is 1.0 ppm. A significant portion of the fish registered far less than this, Clark said.

Although Clark said that additional tests need to be made, he explained why these surveys were conducted. "The reason we collected this data is because there wasn't any information on this," he said. He said that TVA had been receiving a large number of calls since the mercury situation became public.

"We want to try to answer the questions about mercury in the fish in TVA waters," Clark said. He added that the results indicate that there does not appear to be widespread mercury contamination and no immediate health hazard.

Clark said that the next steps to be taken in resolving the situation will come from recommendations made by congressional subcommittees headed by Reps. Marily Lloyd and Albert Gore Jr.

The Oak Ridger

35TH YEAR—NO. 167—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, SEPTEMBER 9, 1983 25 CENTS

• Number 2
ORAU

— From Page One

them identify the area they want checked."

ORAU was contracted by DOE on this project because of its reputation for "fast response time," Gist said.

Gist said he generally sends the numbers on the levels of mercury to DOE once a week. But if necessary he could take a sample in the morning and have it to DOE by mid-afternoon. Although he explained that there are several factors involved in determining the amount of time required such as weather and size of the area to be sampled.

Once the samples, which have included sediment, soil, a variety of vegetables and horse hair, are collected they are numbered and the analyzing process begins.

Three methods for measuring the mercury levels are used with the primary emphasis given to a cold vapor-atomic absorption unit. Gist said in this method air is bubbled through the pulverized and sifted sample which has been mixed with water so that the vapors of mercury rise and can be measured.

Other methods, used as backup, include the neutron-activation analysis and the X-ray flourescent process. The former makes a sample radioactive so that the levels can be read based on radioactivity. The latter method actually provides an X-ray of the components of the material measured.

"This is an intensive study for mercury, but we are looking at other things," Gist said.

A shelf near Gist's lab is heavy with plastic bags full of fine sifted soil; this is the archive area set up to allow for further testing, if necessary, on already collected samples.

About ten pollutants in the list of 129 primary pollutants are suspected to be present in the samples and other areas near the DOE reservation. These include barium, cadmium, arsenic, chromium, silver, thorium, lead and selenium, mercury and uranium, Gist said, in addition to polychlorinated byphenyls (PCBs).

"I feel very comfortable with what we're doing to date," Gist said. "I am ready to stand behind our numbers. One thing I am really pushing is quality assurance."

To avoid any speculation that because ORAU is working for DOE on this project they may pad the numbers, Gist has sent seven or eight samples to the State Department of Health and Environment laboratory for analysis.

"I did it because I thought it'd be a neat a idea at the time," he said. "In retrospect I see why it was a good idea."

Gist said that the results between ORAU and the State show a 27 percent variation with ORAU's numbers on the conservative side. He said that the variation is not great enough to be of concern.

"A lot of what we've been doing is to operate on instinct and knee-jerk reactions. For the most part the knee-jerk reactions were good," Gist said.

Gist's background is in radiology ecology. He teaches courses in radiation training at ORAU. He said that he has had as many eight assistants in the field. More often he has done the work alone or with one other person.

With all of the sampling done in other peoples' gardens Gist said that he has just not had the time to check his own. He lives on Tusculum Drive, not far from the creek.

• Number 3
Mercury

— From Page One

levels of mercury at each depth.

At depths of three inches the levels measured at .18 and .23 ppm; while at six inches the levels were .10 and .12 ppm; and at nine inches .04 and .07.

Mercury levels at Robertsville have a range of from 0.04 ppm to 23 ppm in an analysis conducted Aug. 28. In an Aug. 20 sampling the range varied between 0.10 to 346 ppm.

Soil sampled on Wiltshire Drive on Aug. 15 shows levels of from 278 ppm to 18 ppm. These samples were taken within the flood plain about 40 meters from East Fork Poplar Creek.

Vegetation from Wiltshire Drive was also measured at less than 0.02 ppm.

Analyses of polychlorinated bythenyls (PCBs) in soil, sediment, water and sewage sludge were also made at a number of locations in and around Oak Ridge.

PCB standards are provided from the Environmental Protection Agency for soil (50.0 ppm) and water (0.0015 ppm), and from the Food and Drug Administration for fish (2.0 ppm).

On the Indian Creek floodplain in Oliver Springs two soil samples show less than 0.1 ppm. In Lake City on the Coal Creek floodplain two samples show from less than 0.1 ppm to 0.1 ppm. And on the Town Creek floodplain in Lenoir City the samples were the same.

Sediment in these same locations was less than 0.1 ppm at both the Oliver Springs and Lake City sites and 0.3 ppm in Town Creek.

Sewage sludge sampled at a number of locations included a range of 0.2 ppm to 2.0 ppm. Three Oak Ridge locations and one each in Lenoir City and Knoxville were sampled.

Water in Coal Creek, Town Creek and Indian Creek measured at less than 0.0005 ppm

Number 9

Order

— From Page One

control act that can be taken against polluters, Barrick said. These include administrative, civil judicial and criminal judicial.

Barrick explained that a commissioner's order is "an administrative format which can range from a shut-down to an order that basically says certain work will be done done on a certain schedule in an enforceable document."

Financial penalty is also allowed under such an order, although Barrick said that "at this time it is not a probability."

Wayne Range, DOE spokeman, said that members of DOE's legal counsel have been to Nashville to discuss the situation with Word and his department. Of the commissioner's order he said, "We would consider this to be an agreed order."

An agreed order is the result of the offender meeting in advance with the enforcement agency to work out the terms of the order.

Range said that a commissioner's order would not affect the memorandum. "While we might consider it (the memorandum) very binding, it does not have any legal sanction. It continues in place nonetheless and continues to be effective," Range said.

Barrick said that the offender is notified of the existence of a commissioner's order. The offender has the option to appeal before the water quality control board. If an appeal is made before this board the next step would be take the issue to chancery court, Barrick said.

"We're not adversaries at this point," Barry Sulkin, of the water quality division, said today.

Sulkin said that court action usually only takes place when all else fails.

Clayton Gist, ORAU ecologist, left, taking soil samples on East Fork Poplar Creek. Dan Mantooth, lab-field technician, records data.

Collect mercury samples, no interpretation offered

By ROBIN HEAD INTEMANN

With a few plastic baggies and a trowel, Clayton Gist, with the Oak Ridge Associated Universities, has spent most of the summer trudging through streams and gardens in the city collecting mercury samples.

ORAU is under contract with the Department of Energy for gathering samples as part of the efforts underway by the federal government to evaluate the necessary steps in arriving at a solution for cleaning up the 2.4 million pounds of mercury that was released from the Y-12 Plant over a 20-year period beginning in the mid-1950s.

Gist, who has been with ORAU for seven years, said that while he has opinions on what the numbers of mercury levels mean he is not in a position to offer interpretation. That chore is to be left up the task force comprised of federal, state and city representatives.

"I try to keep from knowing what the data is doing," he said. "I want to keep from forming a bias."

And of course there is more to collecting data than just digging up soil and placing it in plastic bags. In a recent interview Gist described the process involved in collecting and analyzing samples.

Requests for tests of mercury levels began reaching Gist's laboratory in early June. He says they have continued at a steady pace ever since. "I've seen concern, but no panic in Oak Ridge," he said of the situation:

"To a certain extent we're not seeing nearly as many contacts," Gist said. He added that much of time has been spent recently at Robertsville Junior High School and East Fork Poplar Creek.

Before Gist takes a sample he must first receive word from DOE concerning the location and type sample to be taken.

"The way it works is that some private citizen contacts the City," Gist said. "Then the City contacts DOE and DOE gives us the contact." He explained that he or members of his staff try to reach the individual who made the request "to they let them know we're coming and have

(Continued on Page 9 No. 2)

tate prepares order for cleanup

ROBIN HEAD INTEMANN

commissioner's order, ch would carry the weight of , to enforce the clean up of Department of Energy's ste disposal problems may be ied from the State Depart- nt of Health, said Bill Bar- , general counsel for the lth department.

There is no such document " Barrick said this morning. owever, there is a document he draft stages." He expects order to be ready for James d, commisioner, by Tuesday or Wednesday of next week.

The order would have legal enforcement, as opposed to the Memorandum of Understanding which was established among various agencies including DOE, the Environmental Protection Agency and the State Department of Health and Environment.

The memorandum was designed to specify compliance measures to be taken by DOE in its management of waste on the Oak Ridge reservation. The memo has been described by many as simply a "gentlemen's agreement."

"The difference between the memorandum of understanding and a commissioner's order is simply that the former is an agreement to do something," Barrick said. "Whether it is enforceable is another matter. A commissioner's order is an enforcement measure under the statutes of the water quality control act."

There are three types of actions under the water quality

(Continued on Page 8 No. 9)

Continue mercury sampling at RJHS

Environmental sampling at Robertsville Junior High School and other area locations continues as the Department of Energy continues its efforts to evaluate the mercury situation in Oak Ridge.

Soil brought in from Knoxville used to cover contaminated dirt at Jefferson Junior High School was also analyzed. The soil was purchased from Technology for Energy Corp. located on the Pellissippi Parkway. Levels varied from 0.05 to 0.11 ppm.

DOE is waiting for a topographical engineering study to be completed before covering soil at Robertsville. According to DOE, plans call for six inches of top soil on those areas exceeding three parts per million (ppm). Excluded would be the creek bank and the area close to Oak Ridge Turnpike which is densely wooded. The DOE report dated Aug. 30 indicates that all data points exceeding 80 ppm are in the wooded area.

A number of soil core samples have been taken at Robertsville to determine how mercury levels vary with depth. The analysis of three samples taken along the creek bank show elevated concentrations below the ground surface. A fourth sample taken near the fomer Anco lumber building had low

(Continued on Page 9 No. 3)

The Oak Ridger
35TH YEAR—NO. 173—482-1021 OAK RIDGE, TENNESSEE, MONDAY, SEPTEMBER 19, 1983 25 CENTS

City maps sediment sites

Additional information from the contractor who hauled dredged contaminated sediment from East Fork Poplar Creek in conjunction with the recent Oak Ridge sewer line project was provided to the City Staff last week.

The additional information identifies additional sites where the sediment was used as topsoil over the sewer line.

The Department of Energy has notified Oak Ridge Associated Universities of the new findings. ORAU is scheduled to obtain samples of the mercury and other possible contaminants in the areas. ORAU was contracted by DOE to conduct sampling in areas specifically related to mercury levels.

A creek sediment map was drafted and copies sent to the Task Force subcommittee on Sept. 13. The map is not presented as an exact or comprehensive sediment location, according to a statement issued from Lyle Lacy, city manager.

James Harless, code enforcement officer for the City, submitted the map to the Task Force.

The map indicates sediment placement from prior creek/flood control efforts. Some areas in the Woodland district have been identified as being covered with the dredged soil. Other sites include areas between Raccoon Avenue and S. Tulane Avenue, and several sites located off the Oak Ridge Turnpike. Fairbanks Road and Emory Valley Road are other areas identified on the map.

The Task Force continues to evaluate the Oak Ridge toxic material problems. The problems have been of concern since the disclosure by DOE of the release of 2.4 million pounds of mercury. The releases occurred over a 20-year period beginning in the mid-1950s.

The Task Force has scheduled a meeting Oct. 6.

The Oak Ri

35TH YEAR—NO. 177— 482-1021 OAK RIDGE, TENNESSEE, FRIDAY, SEPTE

Fish mercury levels fluctuated

By ROBIN HEAD INTEMANN

Environmental monitoring for the Department of Energy reveals that over the years mercury levels in fish have fluctuated.

"There are no real trends in the data," Tom Oakes, environmental coordinator at Oak Ridge National Laboratory, said. Oakes added that monitoring in fish, and other elements of the environment, has been going on since before the disclosure of 2.4 million pounds of mercury released from Y-12 over a 20-year period.

In a Sept. 16 letter from Union Carbide, which manages the monitoring program, to DOE it was revealed that reports showing mercury levels in fish for 1978 and 1979 were incorrect. The fish are sampled from the Clinch River and the errors lie in the method of compuation, according to Oakes.

Oakes explained that the problem was attributed to the method of analysis. "In 1978 and '79 there began to be more of an interest in mercury," he said. Prior to 1978 the analysis was based on a method relying on ash weight, in which tissue in the fish is reduced for chemical separation without interference from organic matter.

The ash weight method is used for determining radionuclides Oakes said.

After 1979 the analysis method was based on wet weight. "Tthe fish people eat usually will have some moisture in it," Oakes said.

With the exception of one sample of carp taken from Clinch River Mile 12 the levels for 1978 and 1979, after being converted to the wet weight analysis, fall well below the standards set by the Federal Food and Drug Administration.

The FDA standards are 1.0 parts per million (ppm). The

(Continued on Page 8 No. 6)

Fish

— From Page One

carp in question had levels measured at 1.530 ppm. The levels for all fish in a four year period fluctuate so that no general statement could be made as far as trends, Oakes said.

The levels for all years subsequent to the 1979 studies are less than the FDA standards.

Jim Alexander, spokesman for DOE, said today that to his understanding "carp are bottom feeders and the mercury was very likely to be in the sediment bottom feeders ingest."

In addition to carp, bluegill, shad and crappie were also sampled.

Mercury data given at schools

The sampling program on mercury in the environment is still active in Oak Ridge, and the Department of Energy continues to provide data on the levels.

The results released this week indicate that a number of soil samples were taken from Jefferson Junior High School Aug. 24 and Robertsville Junior High School Sept. 13.

Levels at Jefferson ranged from 1.0 parts per million (ppm) to a high of 436 ppm while at Robertsville the range was from .57 ppm to 21 ppm.

Samples from two Culver Road residences, separated by a drainage ditch which drains near Jefferson Junior High, had levels in the sediment of 116 ppm and 23.6 ppm.

Mercury standards in soil have yet to be set by either the State Department of Health and Environment or the Environmental Protection Agency.

Soil from a garden on South Dillard Road showed levels of .114 ppm and .16 ppm.

Canned green beans from a Hollywood Circle home had levels of 3.0 ppm and 10 ppm.

A comparision of soil samples was provided in this week's report from DOE. Soil from Alexandria, Va., had levels of .2 ppm. The highest level was found in Oklahoma City with .27 ppm. Other locations included Boulder, Colo., with .16 ppm; Nevada with .08; Utah with .04 ppm.

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The Oak Ridger

35TH YEAR—NO. 182—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, SEPTEMBER 30, 1983 25 CENTS

DOE n-wastes hearing at Museum C

By RICHARD MERRITT

The Department of Energy has set Oct. 19 as the time for a public scoping meeting on the proposal that may bring radioactive wastes from New York to Oak Ridge.

The meeting will be held at 7:30 p.m. in the auditorium of the American Museum of Science and Energy. A scoping meeting is much like a public hearing, where federal officials gather comment before the preparation of an environmental report.

If Oak Ridge is selected as the site, the wastes would be contained somewhere on the federal reservation.

DOE is currently in the process of determining whether or not it would be better to leave the wastes where they are currently being stored at the Niagara Falls Waste Storage Site, or transport it to either Oak Ridge or DOE's Hanford, Wash., site.

The NFSS has been holding the low-level radioactive residues and contaminated soils since the Manhattan Project days. DOE has been mandated to clean up wastes generated during the Manhattan Project, and as far as the NFSS wastes are concerned, DOE will be studying which of the three sites would be the best for the long-term storage of these wastes.

As a part of the Draft Environmental Impact Statement process, DOE is holding scoping meetings at the concerned areas to gather input and concerns from the localities, so these concerns can be addressed when the Enivronmental Impact Statement is written.

DOE assured assured City Council two weeks ago that any and all concerns that are raised during the scoping session will be addressed by the drafters of the EIS. After the EIS is completed, those concerned will have another chance to make sure that their concerns have been adequately addressed.

(Continued on Page 9 No. 4)

Agencies agree on clean-up progress

By ROBIN HEAD INTEMANN

Despite delays and accumulating paperwork, members of the advisory group involved in assessing the mercury situation in Oak Ridge agree that progress is being made.

David McKinney, of the State Department of Health and Environment's water management division, who serves as chairman of the interagency Task Force which is working toward a solution of the problem, said recently, "Quite a bit is happening."

Jerry Ingram, an epidemiologist with the State, concurred. "We're getting things done," he said. "What we're trying to do is come up with what we term an acceptable level of mercury and we're trying to do so based in a scientific basis."

And once the acceptable levels are determined for Oak Ridge they will serve as a precedent for the entire state.

Wayne Hibbitts, of the Department of Energy's office of assistant manager for safety and environment, said today, "Definitely, progress is being

(C[illegible]ued o[illegible] e 8 N[illegible]

• Number 4

N-wastes

— From Page One

In a letter to the city of Oak Ridge, Lowell Campbell, DOE deputy director of the technical services division, writes: "The meeting will not be conducted as an evidentiary hearing, and those who choose to make statements may not be cross-examined by other speakers.

"To ensure that everyone who wishes to speak has a chance to do so, five minutes will be allotted to each speaker. Depending on the number of persons requesting to be heard, DOE may allow longer times for representatives of organizations; persons wishing to speak on behalf of an organization should identify the organization in their request."

Campbell goes on to say, "Persons who have not submitted a request to speak in advance may register to speak at the scoping meeting; they will be called on to present their comments if

• Number 11

Mercury

— From Page One

made. In order to do a good study it is very important that a careful plan be established by the Task Force."

Although the Task Force does not yet have any recommendations to offer, McKinney said that he hopes to have a final report completed by Nov. 3.

An Oct. 6 meeting has been rescheduled to the early November date because several subcommittees of the Task Force are still concerned with setting parameters for screening other contaminants in sediments, specifically at Watts Bar Lake, according to McKinney.

In August the Task Force met to discuss the situation. "Basically there was a recurring question," Hibbitts said, that there rcury uclic thos imen [illegible] what else?"

be put to bed by collecting samples for whatever other elements the Task Force wants to anaylze," Hibbitts said. He added that it is important to satisfy everyone involved and try to answer all questions.

"We hope to have some of the activities and recommendations begin to bear fruit in November," McKinney said.

Jim Alexander, DOE spokesman, said, "To say that the focus of the Task Force is mercury is only partially true ... the charter goes beyond mercury now." The Task Force will also look at the 129 known pollutants that are listed in the Resource and Conservation Recovery Act.

"We want to get a very definitive list of organics and ra- nnes Valle uthor

that because of the work being done now the future monitoring reports will include more information.

"We learn more and more each year," Hibbitts said. "Ten or 15 years ago we said there was no hazard. Today we say there is no significant health hazard and in 50 years who knows?"

Hibbitts added that the Task Force will look at pollutants and a spectrum of metals, plus radioactivity. He said that it is "a very large list" of contaminants forr which the Task Force will attempt to set parameters.

Oak Ridge National Laboratory researchers are in the process of collecting samples which will be analyzed by the

tions, agreed upon by the Task Force, "from close to [illegible] to as far down as the Tennessee River."

McKinney said there are about a dozen subcommittees working toward the final recommendations. The Task Force is comprised of representatives from DOE, the Environmental Protection Agency, TVA, the City of Oak Ridge and the State Department of Health and Environment.

Ingram, based in Knoxville, serves on a subcommittee working toward the establishment of guidelines for mercury levels in soil. To date there are no standards or guidelines issued by either EPA or the State.

To the best of his knowledge Ingram said that California is the [illegible] tate [illegible] towar [illegible] he [illegible] nes [illegible] he

come up with that at least has some kind of proposal for standards," Ingram said.

Ingram said that the California proposal for the standard in soil is 20 parts per million (ppm). However, "They did not arrive at this figure in a very scientific method," he said.

Ingram emphasized that the State of Tennessee is trying to construct their guidelines on a scientific basis. He explained that his office has been getting assistance from EPA and the Center for Disease Control in Atlanta, Ga.

"The setting of standards is not our responsibility, but certainly we can consult with other federal agencies to come up with an acceptable rule of thumb for Tennessee," Ingram said.

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July hearings follow-up — 3

La Grone agrees lessons have been learned

Editor's note — Joe La Grone, manager of the Department of Energy's Oak Ridge Operations, testified on July 11 before a congressional subcommittee hearing in Oak Ridge on the mercury situation here. Rep. Marilyn Lloyd and Rep. Albert Gore co-chaired the hearing. A month later, La Grone was sent 39 questions relating to his testimony. The subcommittee will include his answers in its final report, which is expected to be issued in October. The Oak Ridger has obtained from DOE a copy of the subcommittee's questions and La Grone's answers, which will be published in a five-part series. This is the third.

QUESTION 15 — Would you summarize the facts concerning the Wilson case of alleged mercury poisoning that you alluded to during the hearing?

ANSWER — James C. Wilson, Jr., was employed by Union Carbide Corporation at Y-12 from Aug. 24, 1951, through Jan. 13, 1961, when he was terminated in a reduction-in-force. He was re-employed from Aug. 6, 1962 through Aug. 23, 1962, when he took a voluntary termination.

From August 1953 through April 1954, Mr. Wilson was a process operator in Beta 4, a mercury processing area. His urinary mercury level was consistently below .3 mg/L (milligram per liter), the industrial standard. He was transferred out of Beta 4 because of high albumin readings, per standard AEC and Union Carbide Corporation practice for mercury workers. Mr. Wilson had higher than normal albumin readings in a pre-employment physical, which readings had leveled off prior to his employment in Beta 4. When the albumin levels rose again, Mr. Wilson was transferred out of mercury activities.

On July 24, 1972, Mr. Wilson filed suit in the U.S. District Court in Knoxville, Tenn., against his former employer, Union Carbide Corporation, alleging that he was suffering from mercury poisoning discovered in August 1971. At a full trial in November 1972, Dr. William Olson of Vanderbilt University testified that Mr. Wilson's condition "could be mercury poisoning," but he could not say with a medical certainty that it was. Dr. Robert Lash of Knoxville testified that the "urinalysis data showed no potential for injury." The Court rendered a judgment in favor of Union Carbide Corporation in March 1973, concluding that Mr. Wilson's medical condition did not arise out of his employment.

Mr. Wilson has recently filed an action against the United States in the U.S. District Court in Knoxville, claiming mercury poisoning.

QUESTION 16 — What do you feel have been the DOE's "lessons learned" in handling this mercury contamination question and its potential impact? Why did it require an outside "Freedom of Information" request to bring about release of the figure for the total amount of mercury unaccounted for from Y-12 operations?

ANSWER — I believe the primary lesson learned, or affirmed, is that openness is the best policy. Get the facts out where thay can be examined. If there is a problem, solve it, but prevent unnecessary anxiety and loss of confidence and credibility by making a full disclosure. This openness must extend to the public, as well as to the State and other federal agencies. DOE's credibility was damaged in the mercury situation because of its lack of openness. We must earn anew the trust and confidence of the public and the agencies with which we work. I believe we are well embarked on that course, but the journey is far from over.

As I indicated in my testimony, I do not know why the unclassified portions of the 1977 report were not made public. At my request, ORO's Office of Performance Evaluation and DOE's Office of Inspector General are both looking at that issue. I will be glad to make their conclusions available when I receive them.

QUESTION 17 — What is the DOE position with respect to whether the present data analysis is a solid basis for recommending any type of remedial action with respect to the mercury contamination? Is there is any estimate of cost benefits of such remedial actions?

ANSWER — I believe that the presently available data base is not adequate for making determinations regarding all of the remedial actions that may be required with respect to the mercury contamination. Some remedial actions are currently underway, and programs to obtain the data required to identify other required remedial actions are either underway or planned. The Interagency Task Force will

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• Number 5

La Grone

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Ridge reservation, e.g., at the Jefferson Junior High School?

ANSWER — We will await the Interagency Task Force recommendations prior to taking action offsite at most locations. At Jefferson Junior High School, however, after consultation with EPA, the Tennessee Department of Health and Environment and the City of Oak Ridge, we placed topsoil on the contaminated area in order to assure that there is no potential hazard to school children. Present plans call for application of top soil also to the mercury contaminated areas at Robertsville Junior High School that are routinely used by students. Additional remedial measures at these sites, if any, will await recommendations of the Task Force.

QUESTION 21 — The Legal Environmental Assistance Foundation charges that although DOE was required by law to do so, it did not report the mercury releases to EPA in 1981 under the Superfund notification requirements. Were you required to report such mercury releases to the EPA, and if so, did you, and if not, why not?

ANSWER — Because of the great amount of data that we have developed in recent months regarding the mercury releases and mercury contamination, ORO is preparing to file Superfund notifications with EPA.

QUESTION 22 — The Legal Environmental Assistance Foundation charges that DOE was required to include mercury as a pollutant in the Clean Water Act discharge permits, but did not so include them. What is DOE's position on this?

ANSWER — The NPDES permit for New Hope Pond was issued in 1975, and contains limited parameters. The permit was based on an application submitted under the Refuse Act Permit Program, administered by the Corps of Engineers. The RAPP permit application indicated a slight mercury content in the discharge in 1971. The decision in 1975 by EPA and AEC was that the proposed (now existing) permit parameters were adequate, based on what was then known. With the greater knowledge we now have, mercury is considered an appropriate parameter for some of the permits that will be issued for Upper East Fork Poplar Creek. Which particular permit points will have this parameter will be decided by EPA, TDHE and DOE, based onn effluent constituents at each point.

QUESTION 23 — Does DOE monitor the quality of the approximately 20 million gallons of groundwater ORO draws each month? Is there a possibility that groundwater discharged to EFPC could increase the chemical pollutant load in this water body?

ANSWER — The estimated 20 million gallons of groundwater is not "drawn" by Y-12. It is naturally occurring in-leakage to the storm sewer system, including the bed of the creek, and constitutes less than eight percent of the total water flow through the plant. While we consider it unlikely that this groundwater increases the chemical pollutant load in EFPC to any discernible degree, we are installing a groundwater monitoring network designed to address this concern.

QUESTION 24 — Please qualify which water samples analyzed for Hg were first filtered and which were not. Did all filtering cease after the mid-1970s or do some more recent data reflect filtering?

ANSWER — During a 3½-year period from January 1974 to June 1977, EPFC water samples were filtered before analyzing for mercury so that the soluble fraction was measured. During that period, the soluble portion discharged to the creek measured a total of 324 pounds. that discharge should probably be doubled to more properly estimate the total mercury discharge, i.e., 648 pounds. The practice of measuring only the soluble fraction of mercury by means of filtering the sample before analusis was restricted to this particular period (January 1974 to June 1977), and it was changed back to total mercury in June 1977. In the period of time before, 1950 to 1973, and in the period after, 1977 to 1982, the analysis reflect the total amount of mercury in the sample, not the soluble portion only.

Another source of some confusion over sample "filtering" has been the correct observation that all samples for mercury in water were filtered by the Laboratory during the period 1957 through 1967. The first half of this period was when the heaviest mercury discharges occurred. Some people have concluded from this that, since all the samples were filtered, only soluble mercury was measured. This is incorrect. The Lab procedure was to filter all water samples through a paper impregnated with cadmium sulfide, the purpose of which was to collect (by precipitation or filteration) all of the mercury in the sample, of any form, on the filter paper. The filter paper was then measured for total mercury content in the subsequent steps of the analysis. Samples during the this period were filtered, but in order to measure the total mercury present, not to measure only the soluble fraction as during 1974-1977. Other analytical procedures were used before 1957 and after 1967.

The Oak Ridger

35TH YEAR—NO. 187—482-1021 · OAK RIDGE, TENNESSEE, FRIDAY, OCTOBER 7, 1983 25 CENTS

Mercury continues to be EQAB concern

By ROBIN HEAD INTEMANN

Mercury in Oak Ridge continues to be of concern to the city's Environmental Quality Advisory Board with several references to it in a number of different contexts at the Board's Thursday night meeting.

Since last spring, when the Department of Energy announced that during a 20-year period 2.4 million pounds of mercury was accountable, the issue has drawn increased public attention.

In its role as an advisory body EQAB has been called upon, by City Council and a congressional subcommittee, to review the mercury issue. Charles Coutant, EQAB chairman, testified in the congressional subcommittee hearing held here in July.

Coutant was among 12 persons who tesitfied who was sent additional questions after the hearing. The list of questions and Coutant's responses, which are to be included in the subcommittee's final report, were provided at the meeting.

Coutant was sent nine questions, many of which asked for clarification of his July tesitmony. He was also asked by the subcommittee, chaired by Rep. Marilyn Lloyd and Rep. Albert Gore Jr., what role EQAB will continue to play in relation to the mercury contamination, to which he responded:

"The Environmental Quality Advisory Board anticipates a continuing role in overseeing the progress of study, evaluation and mitigation. Through a city staff representative on the Interagency Task Force we are keeping abreast of the Task Force's developing plans and we have passed on certain suggestions to them. We expect to be a citizen voice to stimulate action. We are independently evaluating all data made available through the Task Force. Should the Task Force actions not be judged appropriate, we would anticipate making our own recommendations to the Oak Ridge City Staff and Council."

In addition to the numerous references to mercury in the context of upcoming meetings

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and the status of committees working toward solutions and recommendations, the Board also heard from Keith Cole, a residential developer.

Cole, of the Rhondene Corporation, spoke to the group about development plans for West Oak Ridge. Cole is responsible for the townhouse and cluster home development, which includes Greenview and Willow Crest on the west end of Oak Ridge Turnpike.

Of the architecture and landscaping Cole said, "We try to stay with simple, attractive concepts."

Reference to the mercury situation arose during Cole's discussion since he is the only residential developer along the East Fork Poplar Creek. Cole said that he did see a decline in sales during the late spring and summer when discussion of the mercury situation was at its peak. However, he was quick to note that "home sales were down all over and it wasn't necessarily due to the mercury situation."

Cole said that he had the soil and sediment tested in the four areas in which he has plans for development (development of the Greenview area is nearing completion) and said that "there seemed to be nothing alarming, according to the experts."

A lengthy discussion followed Cole's presentation with many members expressing concern for zoning problems in the city and a need for incentives for development here.

An update of the mercury situation was provided by James Harless, the city liaison to EQAB. A Task Force subcommittee meeting is scheduled for Oct. 11 at the Federal Building to discuss standards for levels of mercury in soil. Harless said that he thinks a Task Force meeting will be scheduled in December at which time a progress report will be made to the public.

All board members were present at the meeting in the Municipal Building, including Margaret-Elizabeth Terrell, who attended for the first time in her role as the Oak Ridge High School representative.

Mercury guidelines studied

Members of the interagency task force working toward a solution of the mercury situation in Oak Ridge will meet Tuesday in an effort to agree on acceptable levels of mercury in soil.

To date there are no standards or guidelines for mercury in soil. Jerry Ingram, an epidemiologist with the Tennessee Department of Health and Environment, said today that "we're looking now for the lowest acceptable levels for mercury in soil."

Ingram stressed the fact that "the State is not in the business of setting standards, but we do hope to have some guidelines."

A draft of the guidelines was issued to several persons, including members of the city staff. However, the draft has not yet been made public. Ingram said that the reason it is being kept "under wraps" is because "we want to be able to discuss our methodology and discuss the potential impact of the numbers."

"We have full intentions of taking action on our methodology and giving the public some response," Ingram said.

Wayne Range, Department of Energy spokesman, said that representatives from the Center for Disease Control in Atlanta, the Environmental Protection Agency, DOE, TDHE, and the City staff will be present for the "working meeting" to take place at 1 p.m. Tuesday in the Federal Building.

Once guidelines are established, Ingram explained that those persons who have not yet received the results of any sampling they may have asked be done, will receive results.

Ingram said that this is small group and most persons have received some results.

The Oak Ridger

35TH YEAR—NO. 188—482-1021 OAK RIDGE, TENNESSEE, MONDAY, OCTOBER 10, 1983 25 CENTS

More veggie tests —

New soil mercury measures

Additional mercury data were recently released by the Department of Energy as part of its environmental sampling program in Oak Ridge.

At the request of the Tennessee Department of Health and Environment, additional soil samples were taken from the playing fields at Robertsville Junior High School. The samples were analyzed for a variety of contaminants including mercury, uranium, polychlorianted biphenyls, chromium, arsenic and lead.

The results for mercury, uranium and PCBs were reported but those for chromium, arsenic and lead were not. The unreported parameters appear to be incorrect by a factor greater than ten according to a DOE statement accompanying the data.

In a letter of transmittal accompanying the results, Wayne Hibbits of the office of assistant manager for safety and environment said the apparent error is "due to difficulty in calibrating a laboratory instrument."

"Rather than distribute apparently incorrect data, only the results of the first three parameters are reported herein, pending verification of the questionable results," Hibbits wrote.

Mercury data is available at the Oak Ridge Public Library.

The samples were collected in late August. Levels of mercury range from .09 parts per million (ppm) to 67 ppm; the range for uranium is 6.3 ppm to 22.0 ppm; and the range for PCBs is less

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Mercury

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than 0.1 ppm to less than 1.0 ppm.

Wayne Range, DOE spokesman, said late last week that work on covering the soil at Robertsville had not yet begun. DOE is in the process of obtaining a contractor to do the work.

Soil samples from several Knoxville, Harriman and Morgan County locations were also taken as a basis for comparison. The range in Knoxville was from 0.52 ppm at a Francis Street apartment site to 0.03 ppm at Mabry Hood Road.

In Harriman the range was from 0.09 ppm to 0.2 ppm. The samples were taken from a bridge north of Harriman Highway 27.

The range in Morgan County, near the Stevens Community, was .064 ppm to .32 ppm.

Results of vegetation samples were also provided by DOE. Green tomatoes in the Scarboro community had a high of 10 ppm compared with green tomatoes with a high of 30 ppm from an Oak Ridge Turnpike location near the Wiltshire Estates.

Lettuce from a Netherland Road location showed the highest level of all vegetables tested with a result of 50 ppm.

Cucumbers, squash, green onions and green beans were also tested at a variety of Oak Ridge locations.

Soil samples from a number of locations showed levels of from .06 ppm on Gum Hollow Road to 18 ppm on Spellman Avenue.

Members of the Interagency Task Force working toward a solution and clean-up of the mercury problem will meet in Oak Ridge Tuesday at 1 p.m. at the Federal Building.

Representatives from TDHE, the Center for Disease Control in Atlanta, DOE, the Environmental Protection Agency and Oak Ridge will meet to discuss the results of the DOE environmental sampling program to date.

The state is working toward the establishment of guidelines

The Oak Ridger

35TH YEAR—NO. 190—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, OCTOBER 12, 1983 25 CENTS

Disease officials talk mercury here

By ROBIN HEAD INTEMANN

The interagency Task Force concerned with the mercury situation in Oak Ridge is beginning to move out of the crawling stage and will soon be taking its first, perhaps hesitant, steps in the direction of a solution.

Several members of the Task Force and representatives from the Center for Disease Control (CDC) in Atlanta held a working meeting Tuesday in Oak Ridge to discuss the methodology being used to compile guidelines for levels of mercury in soil.

After Tuesday's meeting Terry Cothron, of the Tennessee Department of Health and Environment, who chaired the meeting, said the purpose was "to get more input as we develop a formula for safe levels of mercury in soil."

The Task Force was formed last spring after the Department of Energy announced that 2.4 million pounds of mercury was unaccounted for. During a 20-year period beginning in the mid-1950s mercury was released into the environment from the Y-12 Plant.

The Task Force is comprised of representatives from DOE, the Tennessee Valley Authority, the Tennessee Department of Health and Environment, Oak Ridge Associated Universities, Oak Ridge National Laboratory and Oak Ridge city staff members.

Cothron said that the information provided by the others attending the meeting made him realize that more data documentation was necessary, particularly in the area of air monitoring.

"There is more air monitoring information than we were cognizant of and that has to be taken into account," Cothron said.

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Mercury

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Pat Turi, also with the Tennessee Department of Health and Environment, said that referencing sources is also something that needs to be done.

Cothron said it could be another month before the State can provide guidelines. "We want to do something like come up with a number, or formula at least, that would give us, and those involved, some kind of guideline to follow. It shouldn't be viewed as a standard, but as something to work with as an interim measure," he said.

Cothron said that the meeting, which lasted two and a half hours, went very well. "I think that everyone came in with an objective view and most had some good comments to offer," he said. "Everyone knows why we want to provide these guidelines and most agree that the approach being taken is a good one."

Turi, who agreed with Cothron's assessment of the meeting, said, "Everything went very well and everyone was pretty objective even in their criticism."

Turi and Cothron attended with Bonnie Bashor and Jerry Ingram, who all work in the epidemiology division at the Nashville office.

Nathaniel Revis, director of the Oak Ridge Research Institute, and Charles Coutant, chairman of the Oak Ridge Environmental Quality Advisory Board, agreed that the meeting went very well.

"I think that the State is doing a very good job ... this is a very difficult task," Revis said.

Coutant said, "The meeting was very useful in that we looked at the draft prepared by the State and a number of technical comments were made. They received a certain amount of criticism, but they (the State) were very positive and took people's comments to heart."

The main interest of the group which met Tuesday is mercury. Cothron said that the other contaminants which are being looked for are of concern, but "it will be the work of the Task Force as a whole."

"We know that the same things that carried out the mercury, carried out the other things," Cothron said.

Several members of the group, including Ingram and the CDC representatives were to meet today with Clayton Gist, the ORAU researcher who actually does the sampling for DOE.

The purpose of today's meeting, according to Ingram was to become more familiar with the process being used here and to tour the East Fork Poplar Creek area.

Turi said that his division has been working with CDC in Atlanta for nearly three months. To date CDC has provided data on the amount of dirt usually consumed by small children. Turi said that this will be incorporated into TDHE's information.

A full Task Force meeting is scheduled for early November at which time the findings of the subcommittees will be presented and discussed. Members of the Task Force hope to hold a public meeting on the progress and findings some time in December. The December meeting would come six months after the DOE disclosure of the mercury situation in Oak Ridge.

The Oak Ridger

35TH YEAR—NO. 191—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, OCTOBER 13, 1983 25 CENTS

'Not like on edge of a cliff' —

Enviro chief: 'Committed to fix'

By ROBIN HEAD INTEMANN

The environmental problems on the Department of Energy's Oak Ridge reservation have been around for years, the new assistant manager for Safety and Environment has been on the job less than two weeks.

Even though he has been here only a short time, P. William "Bill" Kaspar is well aware of the problems and challenges the position holds for him. "There's a definite commitment on the part of this management to fixing (the problems)," he said.

Kaspar, who recently moved from DOE's San Francisco office, is now responsible for worker health and safety programs; facility safety and environmental protection; compliance and quality assurance. In view of the recent DOE disclosures of environmental problems at the Y-12 Plant, Kaspar has his work cut out for him.

"There are a number of problems that definitely need fixing, but I'm not in a position to rank them," Kaspar said in an interview Wednesday afternoon.

Among the problems are mercury, polychlorinated biphenyls (PCBs) and waste disposal sites.

"There is no imminent health risk. It's not like we're on the edge of a cliff," Kaspar said of the problems. Kaspar conceded that the current status of waste disposal and environmental practices doesn't comply with Environmental Protection Agency guidelines, but said, "We want to meet those guidelines and that's where we're heading."

Kaspar echoes the sentiments of Joe La Grone, manager of DOE's Oak Ridge Operations, when he says he sees a number of challenges including "making sure that what we are doing is better known in the community."

Although Kaspar said that he wasn't in a position to rank the problems, he did comment on what is being done by DOE to correct them. "There is a wide range of problems and solutions to be implemented," he said.

Kaspar discussed some of the problems and solutions, among them, PCBs at the Y-12 Plant in the oil-land fields, where waste is stored in soil mixed with oil. Kaspar said that a PCB incinerator is being built at Y-12. "We will take the dirt from those oil fields ... and clean the PCBs out of the dirt there," he said.

KASPAR

The PCB facility is being built at a cost of $33 million and will serve DOE's Paducah, Ky., and Portsmouth, Ohio facilities. The plant is scheduled to be completed by December 1986. "We'll be able to clean up PCBs from just about anything," Kaspar said of the new facility.

At the Oak Ridge National Laboratory Kaspar noted that "there are some things that have to be cleaned up." He identified an on-site coal pile as an example.

Kaspar said that a report is expected soon from the State on its findings of a recent tour of ORNL.

"It's not exotic technology we're talking about, just something that has to be fixed ... we need to bring some things up to standard practice," he said.

Of the Oak Ridge Gaseous Diffusion Plant, Kaspar said, "We're farther along (there) in terms of understanding remedial actions that may be necessary."

The majority of the problems that Kaspar noted exist at Y-12.

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• Number 1

Kaspar

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Much of this stems from the 2.7 million gallons of liquid waste generated annually at Y-12. A temporary solution is storage of the waste in stainless steel tanks. Each tank, of which three are planned, will hold half a million galllons.

Kaspar said that DOE is near completion of the first of the four tanks and construction of the others is on schedule.

The major emphasis of corrective action is at the Y-12 Plant. In addition to the proposed PCB incinerator and storage tanks, areas of concern are the S-3 Ponds and outfalls, or effluents on the site.

One of the S-3 Ponds, which will eventually be closed down, has already been neutralized, Kaspar said. And the Central Pollution Control Facility, which will be located on the Y-12 site, is "on schedule." The facility is expected tp be completed by 1986 and is to be a permanent solution to waste storage.

Kaspar said that there are 130 outfalls at that site. "Some of them have some problems and some of them we see have no problems, but others are going to have to be monitored," he said.

Kaspar explained that monitoring of many outfalls is underway with data being collected to pass to the EPA and the State Department of Health and Environment. He added that he thinks the interagency Task Force, which is working toward a solution of the mercury and environmental problems at Y-12, will eventually look at what must be done with the outfalls.

"Right now we have agreed (with EPA and the State) to monitor certain ones for characteristics," Kaspar said of the outfalls. "EPA and the State have both worked with us very constructively (on this)."

Kaspar said that a December 15 date has been set to transmit data and documents to EPA for the outfalls containing mercury. "EPA is anxious to get the permitting process started," he said. An EPA permit will have to be issued to DOE for the outfalls at Y-12.

"Expectations have changed since the permits were issued," Kaspar said, "in terms of bringing Y-12 up to standard with those of (private) industry."

Kaspar agreed that it was important for government to maintain the same standards imposed on private industry and that is the direction being taken by DOE.

Of the possibility that Oak Ridge might receive radioactive waste from DOE's Niagara Falls Storage Site, Kaspar said, "Our only role right now is to collect public input."

A public scoping meeting is scheduled by DOE for Oct. 19 at the American Museum of Science and Energy.

Kaspar stressed the point that Oak Ridge is only one of several alternatives at this point for the long-term management of the waste.

"This can be an exciting time to make sure things happen," Kaspar said of his new role in general. "We have to make sure that we give the raw data we collect to an outside reviewer — the State or EPA — so we don't look like we are judge and jury of our own data."

The Oak Ridger

35TH YEAR—NO. 196—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, OCTOBER 20, 1983 25 CENTS

More mercury data from DOE

The concentration of mercury at Robertsville Junior High School decreases significantly from the surface to a depth of nine inches at most sampling locations, according to data released by the Department of Energy as part of its environmental sampling program.

Since late spring DOE has sampled soil, sediment and a variety of vegetables in an effort to determine the effect, if any, of mercury in the environment. DOE announced in May that 2.4 million pounds of mercury had been released into the environment during a 20-year period and was unaccountable.

Thirteen soil samples were taken at Robertsville Junior High School to evaluate the distribution of mercury with depth. According to a statement accompanying the DOE data, the concentration of mercury is shown to decrease significantly with depth at most locations.

Samples were taken at the surface, and at depths of surface to three inches, three to six inches and six to nine inches at the school.

The range of all samples taken at the three inch depth was from 3.6 parts per million (ppm) to 41 ppm.

At the three to six inch depth the range was from 2.8 ppm to 40 ppm.

The range at the six to nine inch depth was 1.0 ppm to 97 ppm.

At one typical sampling location, the test results ranged from 24 ppm at the surface to 2.5 ppm at a depth of nine inches. At one site that was not typical, the surface reading was 18 ppm, the reading at three inches was 8.1

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Mercury

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ppm, but at nine inches, the concentration had increased to 97 ppm.

The samples were taken Sept. 27 through Sept. 30.

Vegetables were also sampled at several locations including several in the Country Club area. Two tomatoes tested in that area had results of 20 parts per billion (ppb). Lettuce showed results of 30 ppb and chard had levels of 20 ppb. Corn had levels of less than .93 ppb.

Tomatoes from near the Fairbanks Road area (Culver Road) and the Oak Ridge High School area (Victoria Road) showed levels of 20 ppb and 30 ppb respectively.

The Interagency Task Force formed last spring is working to evaluate the data. A meeting of all Task Force members is planned for early November.

The Oak Ridger

35TH YEAR—NO. 199—482-1021 OAK RIDGE, TENNESSEE, TUESDAY, OCTOBER 25, 1983 25 CENTS

Further delay on mercury hearing report

By SANDRA LENZI
Medill News Service

WASHINGTON — Final congressional findings on the release of mercury into the Oak Ridge environment from the Y-12 Plant are not expected for a couple of months.

The record of July hearing testimony taken in Oak Ridge was left open for some time afterward to accommodate additional questions the congressional team wanted answered, said Jack Dugan, staff director of the House Subcommittee on Energy Research and Production.

The Department of Energy disclosed last spring that 2.4 million pounds of mercury released into the environment was unaccounted for. The leaks occurred during a 20-year period beginning in the mid-1950s.

The congressional inquiry was headed by Rep. Marilyn Lloyd, D-Tenn., chairman of the energy subcommittee, and Rep. Albert Gore Jr., D-Tenn., head of the Investigations and Oversight Subcommittee. The subcommittees are part of the House Committee on Science and Technology.

There was no deadline specified for the report, Dugan said. He said it would probably receive more attention following

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• Number 4

Mercury

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a vote on the Clinch River Breeder Reactor Plant project.

The CRBRP, because it is a "massive item," is consuming all the time Rep. Lloyd and other members of the Energy Research and Production Subcommittee have available, Dugan said.

An amendment to the 1984 supplemental appropriations bill that would provide $2.5 billion in funding for the CRBRP is currently being considered by the Senate. If the Senate approves funding, House action would then be called for.

Dugan said he expects the House to vote on the bill next week.

• Number 5

Unions

— From Page One

subcommittee following the July hearing, chaired by Rep. Marilyn Lloyd and Rep. Albert Gore Jr. He said that it was through these additional questions that he first learned of a number of surveys previously done by Union Carbide.

Once aware of the past surveys and because one of the ATLC's responsibilities is worker health, Keil said that it was decided to compose a survey for the Y-12 workers.

"The work there (at Y-12) was 30 years ago and we don't know whether the company records accurately reflect those that worked in those areas," he said.

ATLC represents 3000 workers at the Y-12 Plant, but Keil expects to send out only several hundred surveys. They will be sent to those chemical workers and the known craft persons who worked with the lithium separation process in which the mercury was used. During the chemical exchange of that process there were several major spills of toxic materials.

Keil said that he hopes to reach those retired Y-12 Plant employes by word of mouth and would like also to send surveys to them. He also expressed concern over security at Y-12 and said, "We're as concerned in keeping national security as anybody." Keil said that once the surveys are returned they will be shown to the Classification Office to ensure that security is not violated at Y-12.

Carol Grametbauer, a Union Carbide spokesman, said today that she was aware of the survey but knew little about it.

Jim Alexander, DOE spokesman, said that DOE, too, was aware of the survey, but felt it was more a concern for Union Carbide than DOE.

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35TH YEAR—NO. 197—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, OCTOBER 21, 1983 25 CENTS

ATLC, machinists survey mercury

By ROBIN HEAD INTEMANN

A survey of workers at the Y-12 Plant will be conducted within the next two weeks in an effort by the Atomic Trade and Labor Council to identify workers who may have been exposed to mercury more 20 years ago.

The ATLC survey and another survey sponsored by a machinists union were designed in an attempt to identify the workers and get an idea of any responses or illness they may have had as a result of possible exposure to mercury, according to Robert G. Keil, ATLC president.

"We don't want to blame anyone," Keil said. "Most of the present management and DOE personnel weren't even here (when the mercury was released)."

Keil explained he testified at the July congressional hearing on mercury in the environment. After that he was approached by a number of ATLC members who expressed concern about the possible health effects of mercury exposure. Keil said that these were persons who worked at Y-12 between 1950 and 1963, the time of the release of mercury into the environment.

Last spring the Department of Energy disclosed that 2.4 million pounds of mercury had been unaccountable over a 20-year period.

On August 19 Keil submitted a draft of the survey to the Classified Material Office at Y-12. "We submitted it to the company on our initiative to be sure that we didn't violate any security. We asked them to review the draft and provide comments and concerns they might have," Keil said.

He said that a few changes were made and the survey should go out within two weeks. Keil said that the ATLC worked with the machinists union on their survey. Efforts to reach a representative of that union were unsuccessful.

However, Keil said that the machinists survey is concerned with types of materials workers have been involved with, at which locations the materials have been worked with and any health effects or illnesses the workers may have had that could be the result of such work.

The ATLC survey is concerned only with mercury. Keil was quick to note that the survey is not a scientific study.He said, "We don't expect anything earth shattering, this is just a precautionary measure."

Keil was sent additional questions from the congressional

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RJHS cover-up starts Monday

Work to cover the mercury contaminated soil at Robertsville Junior High School is scheduled to begin Monday.

Jim Alexander, Department of Energy spokesman, said today that three firms made bids on the work and the contract was awarded Thursday to Roehl Construction Company, of Knoxville.

School has been in session more than two months, but the work to cover the soil has been delayed because of the levels of mercury, which were considered high, found in the soil. No guidelines have yet been set by DOE or the state and the cleanup is a temporary measure.

Alexander said that 3000 cubic yards of topsoil will be placed on the playing and practice fields at the school to a depth of four inches. This is in accordance with information from the Tennessee Department of Health and Environment.

The contract involves the placement of topsoil, seeding and covering of the site with straw. The work is to be completed by Nov. 18 to ensure that the students at Robertsville will have a good playing surface by spring.

The $24,260 contract was awarded to Roehl, the firm that did the remedial work at Jefferson Junior High School.

The Oak Ridger

35TH YEAR—NO. 200—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, OCTOBER 26, 1983 25 CENTS

Tell worker mercury study

By ROBIN HEAD INTEMANN

A comprehensive study of the health of workers exposed to mercury at the Y-12 Plant in the 1950s was released by the Department of Energy today.

The conclusion of the 61-page report restates what has been said in the past: "There were no significant signs of mercurialism during the time of the operations, nor have the studies conducted since shown any long-term effect from these mercury exposures."

What the newly declassified study does contain is a detailed description of the efforts made at Y-12 to decrease potential health threats to the employes involved in the lithium separation process. This required large quantities of mercury. The program "was operated in an atomosphere of high urgency and resulted in a great number of high air and urinary mercury concentrations," according to the report.

The effects of mercury in the environment and on health have been of increased concern since DOE disclosed last spring that 2.4 million pounds of mercury was unaccountable over a 20-year period. The mercury losses began in the 1950s at Y-12.

The study released by DOE is the fifth chapter in a six-chapter report entitled "Mercury at Y-12 — A Study of Mercury Use at the Y-12 Plant, Accountability, and Impacts on Y-12 Workers and the Environment — 1950-1983." The research for the 417-page overview was completed Aug. 18 by a 24-member task force at the Oak Ridge National Laboratory. The other chapters are expected to be declassified within the next two weeks.

Chester R. Richmond, associate director for biomedical studies and environmental studies at ORNL, explained that the report "goes into more detail than past studies." Richmond testified at the congressional hearing here

(Continued on Page 7 No. 2)

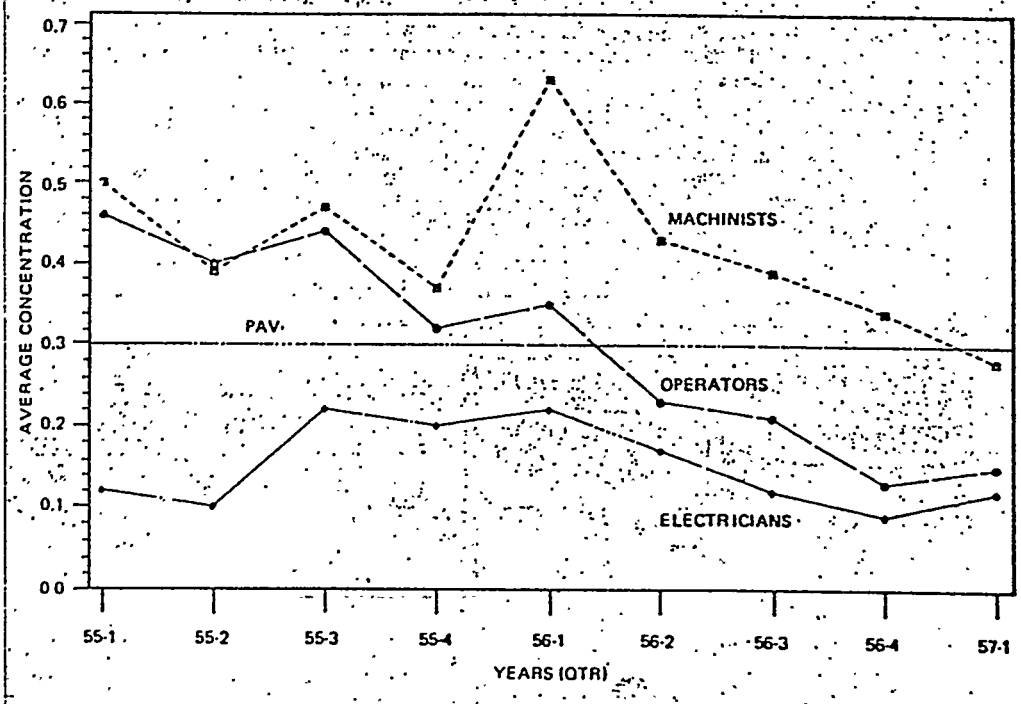

Chart illustrates average mercury-in-urine concentrations for three crafts working in building 9201-5 at Y-12 where large quantities of mercury were used in the lithium separation process.

said his message to Nicaragua of the burglars who entered Demo- Reagan said he anticipates

Mercury

From Page A1

whose department has been attempting since February to force DOE to clean up mercury and other chemicals dumped as a result of the Oak Ridge operations.

According to the DOE report, five major spills in 1955, 1956 and 1966 accounted for the loss of almost 500,000 pounds of mercury. Two spills were caused by "improper valving," it said.

Of those incidents, the largest single spill happened in 1966, when 100,000 pounds leaked from storage tanks inside the plant. The accident was investigated by the U.S. Atomic Energy Commission later that year.

Mercury from those five spills was recovered through excavating dirt, shoveling the metal from floors and vacuuming and sweeping, although the report estimated unrecovered mercury could be between 150,000 and 225,000 pounds.

The report said mercury losses into the creek totalled 470,000 pounds through 1962, with another 5,000 pounds lost the following 10 years. The releases were curtailed substantially in 1963, DOE spokesman Jim Alexander said, when the plant built the "New Hope Settling Ponds" on the reservation.

It warned if the 20-mile-long creek were widened and deepened, only 4,000 pounds of mercury could be removed, the report estimated.

Airborne losses, which totalled 30,000 pounds, were reduced to "practically zero" by 1958.

Since 1977, Alexander said releases from the Y-12 plant have been less than 50 pounds per year. Alexander said no mercury was being used in the process now, but that residual substances are still slipping into the creek.

"Even though we've shut down the processes — we have not processed that since 1963 — we still get some residual mercury moving out. The process was in several buildings and we can't clean it all up. It moves when it rains, too.

"You just can't snap your fingers and make it all go away," Alexander said.

He said presently two ounces of mercury flow into the creek with some six to eight million gallons of water.

Arthur G. Linton, the EPA's federal activities coordinator, said he didn't know if the 2.4 million pound loss of mercury may pose a health problem in the area.

"It has the potential," said Linton, who is overseeing the EPA's efforts to negotiate a new pollution permit for the Y-12 Plant, to replace one that expired in 1980. "It gets into the food chain rapidly, like in fish, and people eat fish."

Linton said the toxic metal "is so persistant in the environment" and accumulates within the body "like lead."

Alexander said the DOE based its "no hazard" assessment on federal studies which found mercury concentrations in fish above Food and Drug Administration guidelines in parts of the creek nearest the nuclear reservation.

He said FDA official Dr. Thomas Clarkson also reviewed data, toured the creek and took sediment and fish samples, and declared mercury concentrations were unlikely to pose any problems.

"Eating the fish is clearly a pathway to man for mercury," Alexander said, but he added that the creek is rarely used for other than sport fishing.

According to a March state inspection report, a sediment sample taken from the creek in Oak Ridge showed mercury concentrations of 18 parts per million (ppm), compared with a 0.5 ppm level expected to be found in naturally in the environment.

In a tentative agreement reached among EPA, DOE and the state, authorities said they would establish a task force to study mercury contamination and form a clean-up plan. A task force for the city of Oak Ridge is also studying the problem.

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New charge DOE ignored warning

RIDGER 5-26-83

Another scientist has charged that the Department of Energy chose to ignore warnings of dangers from mercury contamination from the Y-12 Plant.

Jerry Elwood, of Oak Ridge National Laboratory's environmental sciences division, said that he conducted a study in 1977, calling for major investigations of East Fork Poplar Creek.

Elwood's study was completed within three days of a Union Carbide report that showed 2.4 million pounds of mercury was lost from the Y-12 plant between 1950 and 1977.

His comments follow charges by Steve Gough, former ORNL scientist now working in Virginia, that he had done some unauthorized sampling of the creek that led to the studies that closed the creek to fishing last November.

Elwood didn't sample East Fork Poplar Creek, but in his report on the area he said, "Sediment data shows that Bear Creek and East Fork of Poplar Creek are potential sources of elevated mercury concentrations in Poplar Creek and the Clinch River."

But after the report was written, Elwood says that DOE's response was minimal. "I wrote the report," he said. "I sent it out to people on the distribution list and I got comments back from them. I then sent out the final report. That, essentially, was the last I heard of it."

Jerry Wing, DOE's environmental protection chief in Oak Ridge, responded to Elwood's draft report.

"... I have reviewed the report and think that overall it does a good job of describing the current status. Implementation of the recommendations will assist us in determining the future course of action.

"... In addition, since the situation is quite sensitive from a public information standpoint, it is requested your report remain 'Business Confidential,' with the distribution not to exceed those on the list provided you at our Dec. 20, 1976, meeting," Wing wrote.

Wing said some of Elwood's suggestions were put into effect, such as an upgrading of monitoring, and some fish samples were regularly taken from Poplar Creek and Clinch River before and after Elwood's report. But he said little was changed as a result.

"It bothered me," Elwood said. "I thought that my recommendations were reasonable recommendations. The contamination in lower Poplar Creek was such that additional studies were warranted."

Jt caution on creek use —

RIDGER 5-26-83

Doctor sample shows no mercury illness

By CATHERINE FOSTER

Doctors in Oak Ridge — at st the six that The Oak Ridger ked to — say they've seen no dence yet of mercury poison- g or influence in any of their atients.

The Oak Ridger contacted ysicians from several fields r their opinions on the mercury sue, following the revelation by Department of Energy last ek, that 2.4 million pounds of ercury has been lost over the ast 30 years. The doctors are ne Caldwell, pediatrician with Children's Clinic; Alex rabia, pathologist at Oak idge Hospital; John Crews, a eneral practitioner; Francis switz, internist; William P. irdy, pediatrician; and Ronald . Sinicrope, nephrologist.

The six were unanimous in eir opinion that none of the pa- nts they had seen showed any ndication of effects from the nercury losses. As Dr. Crews it, it, "I haven't seen any ronic cases (of any type) that ve couldn't explain. I just can't see any reason that anybody uld have medical problems m those losses."

But Dr. Crews did add that East Fork Poplar Creek, where 75,000 pounds of the mercury is id to have entered the stream,

DR. CALDWELL 'No situation... (of) mercury.'

DR. CARABIA Never 'on any patient at any time.'

DR. CREWS 'Not the place I'd go fish.'

DR. HARDY 'This is ... a media event.'

DR. GOSWITZ 'Never, never, never with mercury.'

DR. SINICROPE 'No indications remotely similar.'

is "not the place I'd go fish." Persons would have to eat a great deal of fish from that creek, on a daily basis, for the mercury found in the fish to have an impact, he said.

Dr. Crews remembers an "old man" who used to be a patient of his who would bring him turtles caught in the creek. "He would hunt for turtles in the area above the sewage plant but below the Minit Chek Market," Dr. Crews remembers. The old man died several years ago, but Dr. Crews said that "while cleaning out the freezer" last summer, he found a package of turtle meat. "I considered throwing it out (because it had been in the freezer for a few years), but I ended up making some turtle soup with it. I ate it, and I've lost no sleep over it since."

Dr. Caldwell said that he had seen no cases at the Children's Clinic that might have involved mercury contamination. "We have seen no situation where we would be looking for mercury as a possibility," Dr. Caldwell said. "I realize that this is an emotional thing in the community, so let me say exactly what There has not been a come up where mercur ing has entered into a tial diagnosis." He e that a differential diag one in which a list of all causes of unusual sym drawn up, and then e and ruled out.

Dr. Goswitz said tha never seen in any patier dication that would caus test for heavy metal int during the time he has private practice. How added, while he was with Oak Ridge As Universities, he did exa couple of patients" in wl

poisoning was a conc never, never, never cury, no," he said.

Dr. Hardy said th never done any merc in the children he se complained that the been overplaying th story. "You're turni another Three Mile I said. "This is gettir media event. I doubt that anybody lives Creek."

Dr. Hardy pointe many of the sympto cury poisoning — diz of peripheral vision, are the same as tho meningitis "and eve He added that years ed to give mercur with intestinal obstru

Asked about pa possible mercury po Sinicrope said, "I none whatsoever, an tions remotely simil gested that as the m tion "gets more maybe more peopl in." A kidney spe Sinicrope said, " mercury is not well the kidneys. It tends so it would be foun examining persons problems.

Dr. Carabia, wh tests on "fluids or ti tients, as requested tors, said that he ha asked by any docto for mercury conta any patient at any ti

High levels of mercury found in Oak Ridge junior highs

By [illegible]
Times Reporter

Two Department of Energy reports on mercury contamination in Oak Ridge show high levels of mercury in the soil near two junior high schools and lower levels in the creek where 176,000 pounds of mercury was spilled between 1965 and 1977.

The two reports, given to *The Times* by the DOE, do not indicate any immediate danger to public health, an official with the U.S. Environmental Protection Agency said Monday.

But the readings of 25-40 parts per million of mercury in the soil "show there is a significant amount of mercury," said Ralph Brooks, TVA's assistant director of the division of air and water resources.

"The place to look for real danger from mercury exposure in soils is if people are going to grow vegetables or if they're going to be working the soil with their hands," Brooks said. Certain vegetables can absorb mercury and pass it along as toxic methylmercury to humans.

The two reports, which detail monitoring programs requested by the city of Oak Ridge after DOE admitted it lost 2.4 million pounds of mercury to the East Fork Poplar Creek, the air and the ground.

The mercury was spilled at the government's super-secret Y-12 plant, where nuclear weapons are fabricated.

Ambient air sampling showed no mercury, according to a cover letter signed by J.F. Wing, DOE safety and environmental control director.

But samples taken from soils at Jefferson Junior High and Robertsville Junior High show mercury levels ranging from .05 to 40 parts per million.

At Robertsville Junior High, the soil on the ballfield contained 15 parts per million of mercury. That reading is much higher than normal, Brooks said.

"From what they (DOE) reported to us, the level

See MERCURY, A2

Continued from A1

of mercury that was lost at Oak Ridge was very large — the largest I've ever encountered," said Howard B. Zeller, assistant regional administrator for EPA in a telephone conversation Monday.

"I'm not as concerned about the numbers in the soil and sediment as I am about how available that mercury may become to organisms such as fish or terrestrial animals that could get involved in the food chain," Zeller said.

Mercury by itself is not poisonous. What makes mercury toxic is exposure to a certain bacteria which convert mercury to a methylmercury form easily absorbed by living organisms, including humans. Methylmercury poisoning can be lethal.

"The levels of mercury in soil and sediment tend to indicate that a high level (of mercury) exits, but the levels in organisms are what count," Zeller said.

A task force composed of officials from EPA, the Tennessee Department of Health and Environment, DOE and TVA will hold its first meeting Thursday to map out a plan to deal with the mercury spills.

Two congressional subcommittees will hold joint hearings July 6 on the mercury losses, made public May 17 when DOE declassified a five-year-old report describing how the mercury disappeared.

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.15 ppm

6-30-83 Knox Journal

DOE finds 'serious' OR toxic waste

By CAROLYN SHOULDERS
The Tennessean

OAK RIDGE — Measurements of toxic wastes in ground water at the federally-owned nuclear weapons plant here indicate pollution is extensive and serious, state officials said.

Water samples taken by the U.S. Department of Energy show that some ground water around its 40-year-old Y-12 weapons plant has levels of toxic wastes hundreds of times beyond the Environmental Protection Agency guidelines for safe drinking water.

The figures, which cover water samplings from 1978 to 1982, were released this year to the state Department of Health and Environment for the first time.

"It appears the ground water contamination is extensive and serious based on the data I have seen," said Barry Sulkin, state water management inspector.

No drinking water is known to be imminently threatened by the contamination, he said, but ground water contamination is a violation of state law protecting ground water as potential drinking water.

The water samples were taken from about 40 monitoring wells on the DOE property near the burial sites where hazardous materials have been dumped.

Some wells measure the ground water near an unlined burial ground where DOE apparently violated state law by dumping hazardous materials directly into the ground water.

"Yes, they (state officials) indicate you're not supposed to dispose directly into ground water," said Gabe Marciante, DOE environmental engineer at Oak Ridge.

"Yes, we have disposed directly into the ground water. But as to what eventually ends up in wells and whether it is acceptable or not has not been discussed between us and the state."

The ground water data show the presence of mercury, cadmium, chromium, uranium, perchloroethylene, methylene chloride, and lead — all of which are toxic, and which in very high levels, can cause severe health problems.

The highest readings on each of those substances show:

Cadmium levels up to 87.5 times the drinking water standard.

Uranium levels up to 279 times the EPA suggested goal.

Methylene chloride levels up to 137 times the EPA guideline.

Perchloroethylene levels up to 35,000 times the EPA guideline.

Lead levels 53 times beyond the EPA drinking water standard.

Sulkin said the state requested the DOE information on ground water because it became obvious to the Department of Health and Environment that some material was seeping into the ground rather than the creeks.

"If we were to find there was not ground water contamination around some of the dump areas, then the problem would be confined and perhaps it could be cleaned up before it reached the ground water," Sulkin said.

"The fact that it is already in the ground means the problem has already spread beyond the pits. It's very likely that it's not possible to clean up ground water."

Ruptured water line sparks further DOE mercury testing

OAK RIDGE — The Department of Energy is checking for further mercury contamination in New Hope Pond and East Fork Poplar Creek after a water line burst early Wednesday morning, leaking nearly 1 million gallons.

DOE Oak Ridge Operations spokesman Harvey Cobert said technicians were taking samples after a rupture in a water line around 3 a.m. Wednesday.

Preliminary results should be ready by noon today, Cobert said.

The line broke under the Alpha Four building, which houses equipment formerly used in the lithium isotope process. The lithium process used mercury and the building was the site of several major spills.

Last month, the DOE admitted 2.4 million pounds of mercury were lost between 1950 and 1977.

Parts of the building are also used for offices, a shop and storage.

The rupture came in a major 12-inch water line at Y-12 weapons components plant and resulted in leakage of nearly 1 million gallons of water before the break could be isolated. The DOE used auxiliary lines and was never without fresh water, Cobert said.

A significant amount of the water is contained in the basement of the building and the remainder apparently went into an industrial ditch which drains into New Hope Pond and East Fork Poplar Creek, DOE spokesman Wayne Range said.

Samples of the water remaining in the building were taken to test for mercury and other possible contaminant. New Hope Pond is routinely monitored for contaminants at its outfall.

Old mercury sampling technique ineffective

ERRY McWILLIAMS
al Reporter

AK RIDGE — A sampling technique by Department of Energy researchers ore than two decades until 1977 may grossly understated mercury concenns in area streams and lakes.

d because of the way mercury samples processed, the data collected may com- the job of a federal-state task force d last May to analyze mercury probn East Fork Poplar Creek and to devise up plans, state officials said.

his (data) is not very useful," said Da- McKinney, the state's Water Quality ol Manager.

nnessee Valley Authority workers had ed to take mercury data collected by nt agencies over the years, put it in a rdized form, computerize it and run ical tests. Those results would help in ing a new mercury study.

te officials believe DOE data may to be dropped because at the time of tion, researchers poured their stream es through filters. Since much of the ry is attached to suspended solids in a n, filtering captures much of the mer- and lowers the concentrations.

essence, that removes a majority of the mercury from the sample," McKinney said.

The readings show the amount of mercury dissolved in water, and generally, mercury doesn't mix well with water, he said. Other variables affecting the readings include the number of suspended particles in the stream, whether those particles are composed of clay or sand and how much mercury passes through the filter.

"In assessing the movement of mercury, the best procedures for knowing everything there is to go for the total amount of mercury," McKinney said. "It (filtering) makes it difficult to interpret the numbers. I wouldn't say they're useless."

McKinney said the DOE data technique would put a "big hole in the data," and that the task force has a "tremendous amount of work" to perform in establishing a new base of mercury data and possibly translating the DOE data. To translate the DOE data, the task force would need reports of stream conditions when the samples were taken.

"Why they were filtered, there must be some rationale. I can't answer it," McKinney said.

Jerry Wing, chief of DOE's environmental protection branch, said the technique was used until 1977, when an Oak Ridge National Laboratory scientist suggested a change to unfiltered measurements for mercury.

It was changed "to get a more accurate analysis," Wing said.

State officials point out higher mercury concentrations are registered from samples taken from East Fork Poplar Creek in earlier years. But other DOE reports, particularly a once-secret report, have indicated that releases into the creek amounted to about 520,000 pounds, most of which was lost before 1972.

Wing was asked the usefulness of the pre-1977 data.

"We haven't discussed that. I don't know how they (the task force) would feel about that," he said.

Another member of the task force, TVA water quality specialist Jack Milligan, acknowledged a difference could exist between unfiltered and filtered sample, but said he believed it made little difference.

"You can equate the two. I don't see any problems," said Milligan. He said he thought it is possible to make adjustments.

In a related development, the Energy Department released figures showing mercury concentrations as high as 250 parts per million in soil samples taken 20 feet from an access road to Oak Ridge's Jefferson Junior High School.

The data, compiled June 23, is the latest gathered on Fairbanks Road by Oak Ridge Associated Universities for DOE.

In 11 soil samples taken in the latest test, all but one registered more than 75 parts per million. The one that didn't was a "control" point near a telephone pole some distance away from the other samples.

The mercury concentration in the telephone pole sample was 4.1 parts per million, according to a chart of the data.

Earlier testing on June 10 had determined a high concentration of 40 parts per million in the soil more than 500 feet from the entrance of the school.

The soil in the sample is on a sewer line belt created during construction. Shortly after the first testing was completed, Oak Ridge Schools Superintendent Robert Smallridge said the locations were not those usually frequented by students.

Smallridge also said the school system planned no action until more information concerning any possibly threat to human health had been determined.

No limits for mercury concentrations in soil have been determined, although state regulations set drinking water standards at mercury levels of no more than two parts per billion.

Group to tackle OR's spill issue

By ROGER KING 6/24/83
Journal State Reporter

A multi-agency task force is "past the phase of the flashbulbs going off" and must settle into its difficult job of finding out how much danger — if any — Oak Ridge is in from the chemical spills of years past, a state environmental expert said Thursday.

But until the extent of the problem is known, many of the questions of Oak Ridge residents, campground owners and fishermen about how their lives are affected by the pollution remain unanswered.

Task force members from TVA, the Department of Energy, the Environmental Protection Agency and the state Department of Health and Environment met for the first time Thursday to analyze just what is needed to clean up the city.

"We've gotten past the phase of the flashbulbs going off and we must be sure its not forgotten," said David McKinney, of the state Department of Health and Environment.

As a result of that statement, McKinney was informally appointed spokesman for the group, which will field questions on the general nature of the clean up.

Task force member Dr. Ralph Brooks, a TVA engineer, said the first item on the group's agenda is a visit to the area. Next is a review of current DOE data, a definition of what "pathways" the pollutants use to enter the environment, formulation of cleanup plans, the clean up itself, and evaluation of its success.

The forming of the task force was triggered by the release in May of a 5-year-old DOE study detailing the spillage of 1,200 tons of mercury from experimental operations on the Oak Ridge reservation between 1950 and 1977.

At stake is not only a solution to the question of mercury, but of questions about what other chemicals or compounds may be lurking in the environment as a result of Department of Energy activities in Oak Ridge.

The committee has no idea of how much a cleanup would cost, how long such an activity would take, where the key problem areas are in the city, or even what methods would be used to measure the concentrations of any chemical that in the wrong setting could be considered toxic to the public.

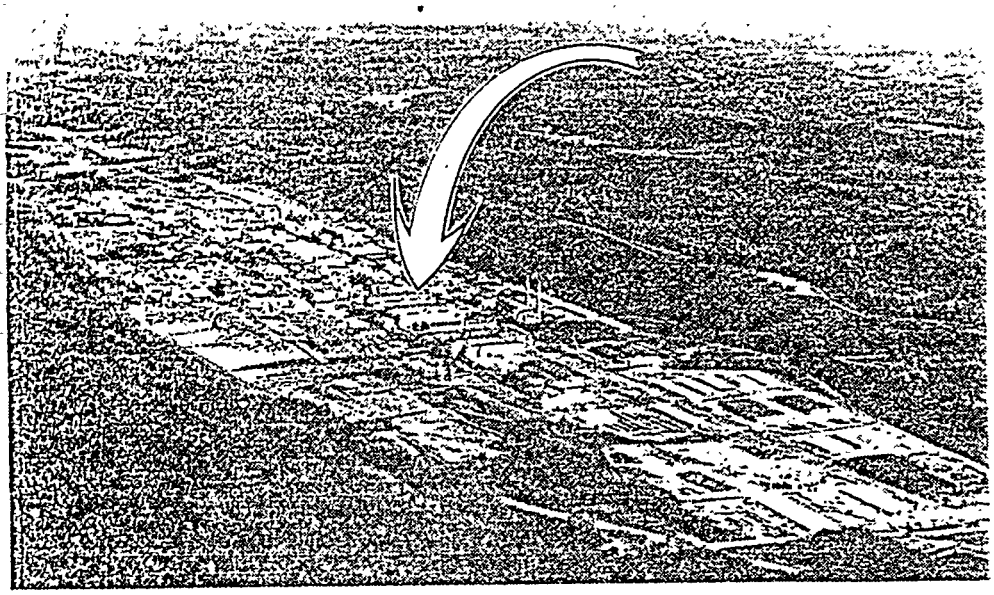
Since the announcement of mercury pollution, Oak Ridge-area campground owners have called DOE to report lost business due to campers' fears that the fish caught at their parks are unsafe to eat.

Residents of the Scarboro community in Oak Ridge have questioned city officials to learn if the East Fork of Poplar Creek — believed to be the resting place of 475,000 pounds of the lost mercury — is a danger to their health.

The creek borders the community.

Oak Ridge city officials have even resorted to interviewing truck drivers to determine where fill dirt taken from the vicinity of Poplar Creek has been deposited around the city.

"There are only two places where topsoil has been moved (from the banks of Poplar Creek)" said city staffer Jim Harliss, who was present in the audience. The locations are on Fairbanks Road, near Jefferson Junior High School and on Emory Valley Road, he said.



An aerial view of the Y-12 Plant. Arrow points to the Alpha 4 building.

Big Y-12 water break stirs up mercury residue

Following a break in a major water line at the Y-12 Plant early Wednesday morning, more than one million gallons of fresh water leaked into New Hope Pond, apparently stirring up mercury underground and raising mercury levels in the pond to a high of 99 parts per billion.

That high was reached at 6:45 a.m., about three hours after the leak in a 12-inch water line under the Alpha 4 building. The leak occurred about 3 a.m. but no public announcement was made of it until 5 p.m. Wednesday.

That building is the home of now-unused lithium isotope separation equipment — one of the areas from which 2.4 million pounds of mercury has been unaccounted for at Y-12.

Samples were taken every hour, and later every two hours, from the outfall of the artificial settling pond on the Y-12 plant grounds that empties into East Fork Poplar Creek.

"That was where we were most concerned because it goes into the community," according to Harvey Cobert, spokesman for Union Carbide Nuclear Division. The spill was contained after about 30 minutes, he added.

Cobert added that about 350,000 to 400,000 gallons of the water is contained in the basement of the building.

The remainder apparently went to New Hope Pond and East Fork Poplar Creek, which already has been shown to contain residual mercury, Cobert said.

Cobert defended the 14-hour delay in releasing news about the water leak by saying, "We felt that the problem was that we had no information. We just didn't know how much water was involved."

Asked about the delay, Wayne Range, spokesman for the Department of Energy, said, "We were in active discussions with Carbide during the course of the day concerning facts about the incident and the need for release of information. We finally decided, near the end of the work day, to release preliminary information until further details could be developed."

Cobert said the first sample of the pond's outfall, taken at 3:45 a.m., showed 6 parts per billion of mercury. He said the state mandates a maximum 5 ppb, while the federal government mandates 2 ppb.

By 5:30 a.m., the level had risen to 8 ppb and at 6:45 a.m., the level had reached a high of 99

(Continued on Page 8 No. 8)

Y-12 water

— From Page One

ppb, Cobert said. At 7:45, the level had dropped to 79 ppb, he said.

Between 9:45 a.m. and 3:45 p.m Wednesday — the time of the last sampling reported to Cobert — the levels fluctuated between 27 and 37 ppb, Cobert said.

Results of further samples will be received later this afternoon or this evening, he said.

"Naturally, we're unhappy about the high levels," Cobert said. "But the creek is posted for fishing, and we see no immediate health danger."

He said the water line was used to carry "potable" water used for drinking and for other purposes, including sanitary water for flushing toilets.

He said samples taken inside the building's flooded basement showed concentrations as high as 1197 ppb. He said the water would be pumped into tank trucks and stored elsewhere on the plant site.

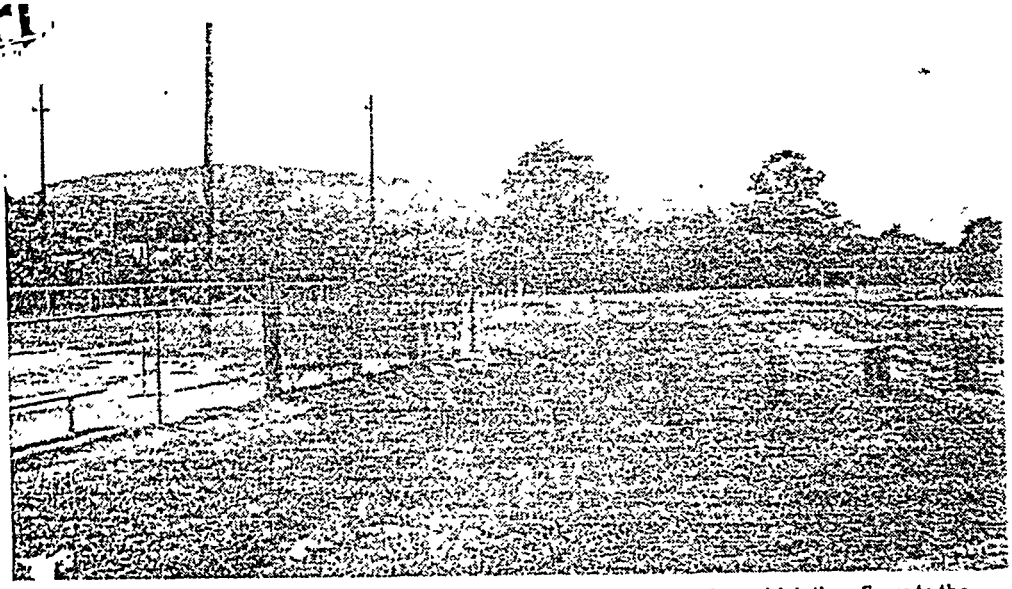
The Department of Energy last month released a 1977 report that said East Fork Poplar Creek had already been contaminated by the release of about 475,000 pounds of mercury since 1950.

The Alpha 4 building houses idle equipment used in the 1950s and 1960s to processs lithium isotopes that were used in thermonuclear weapons. Parts of the building are also used for offices, a shop and storage.

Cobert said the line's age is a possible cause of the rupture. "These lines have been in there for 40 years. We do have problems with them. This is old equipment," he said.

The line supplies water to numerous buildings in the Y-12 complex andd an auxiliary supply was immediately turned on, Cobert said.

Pri

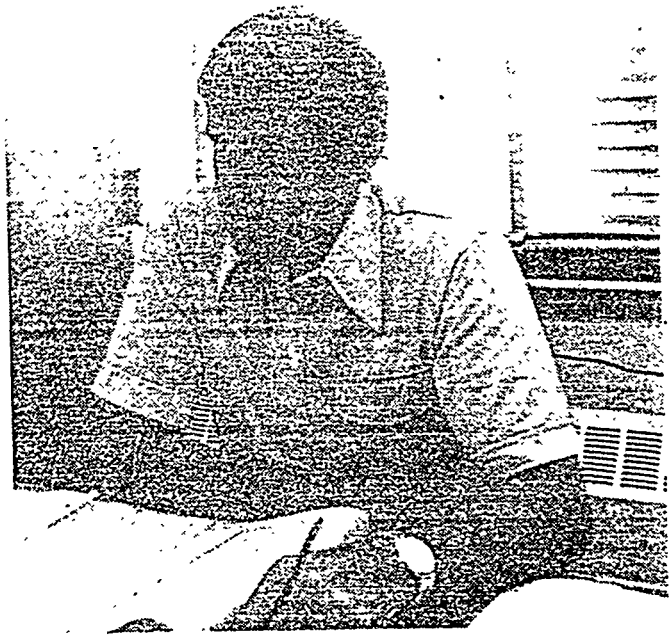


A ditch running alongside the ball field collects runoff from heavy rains, which then flows to the creek.

• Number 2

Mercury

— From Page One



Hayes in his office this morning.

Levels found in the creek at Robertsville measure from 0.20 to 0.35 ppm, well below the federal concern level of 1.0 for water.

DOE has also sampled air quality at Robertsville, the Jefferson tennis courts, and at Big Turtle Park, and, according to Jerry F. Wing, chief of DOE's environmental branch, "No mercury was detected in any of the samples analyzed."

The areas that have been tested so far — and the things tested — include the following:

- Fairbanks Road, near Jefferson Junior High School, for soil;
- Scarboro community, for water and turtles;
- Poplar Creek, for fish, with only two fish out of 90 showing levels greater than 1.0 ppm;
- Greenview Estates, for soil, creek water, and creek sediment;
- Robertsville Junior High, for creek water, soil and creek sediment;
- East Fork of Poplar Creek, for water;
- Big Turtle Park, for soil;
- Gum Hollow Road, for sediment;
- West Tuskegee Drive, for wellwater, where levels showed less than 0.01 ppm.

Terry Cothron, with the state Department of Public Health and Environment, agreed this morning that analyzing the results from the sampling is difficult because of the lack of a federal standard. "There are just no comparison values," Cothron said. "That's a problem not only with mercury, but with other compounds. With fish, with water, we have levels, and the figures from Oak Ridge look pretty good on those scores."

But as far as the soil levels are concerned, Cothron feels that they're "higher than average," but he doesn't think that necessarily means people should become alarmed.

"If there is a number for concern, I don't know what it is," Cothron said. "What I can say is that the numbers the survey is showing are consistent with the level of losses from Y-12."

He added, "I think people should take normal sanitary precautions," Cothron said. "Don't let your children eat dirt, as they are sometimes wont to do. If you work in the dirt, wash your hands. Am I ready to say, don't eat the vegetables? No, I'm not saying that. The figures just don't bear that out."

Cothran said he's not surprised that the figures from the same area have such a wide range. "It's just not uncommon for the numbers to be different. I've seen orders of magnitude difference in samples from just two feet apart," he said.

plans for the apartment project to be located on Tempura Drive and considered rezoning requests and subdivision requests.

The Preston property is also slated for annexation, but no opposition was presented at the four-and-a-half-hour meeting in the Municipal Building courtroom.

Because of the large number of citizens interested in the annexation issue, the planning commission chose to hear that first. Commissioner Maxene Rotty asked city planning director

When questioned about the projected tax revenues from the proposed annexed areas, Faust explained that most figures were based on an analysis method "There's no way to know exactly what goes in or what goes out," he said, adding that many of the figures in the study report were furnished by the finance department.

An ad hoc committee was se up to study the issue further.

Lynn Noey, chairman of the commission, requested that the finanace department be presen

Bill Kasper, upper left, at this morning's 1983 DOE Environmental Report briefing. Dale Huff, Tom Oakes and Wayne Hibbitts are also pictured. At bottom Travis Curtis and Larry Long.

Pollution study released

By ROBIN HEAD INTEMANN

The Department of Energy's environmental monitoring report for 1983 was released today with much more fanfare than in past years, but with little information that has not previously been reported.

At a briefing held this morning at Oak Ridge Associated Universities, several DOE and Martin Marietta Energy Systems officials reviewed the 123-page report.

"There are no major announcements," Jim Alexander, DOE spokesman, said. He told the group of reporters and public information officials from the various DOE plants that "the report contains considerably more data than in past years."

Included in the report as new information is the fact that elevated levels of polychlorinated biphenyls (PCBs) have been detected in bluegill collected from the pond at South Hills Golf Course. Although it technically does not fall into the routine environmental monitoring, Wayne Hibbitts, DOE branch chief, referred to the PCB information as one of several "special studies" included in the 1983 report.

The short term study was conducted in June 1983. The purpose of the study was to evaluate elevated levels of mercury, uranium and PCBs from several sites near upper East Fork Poplar Creek. The average level of PCBs in the fish collected

(Continued on Page 7 No. 5)

In the sheriff's office —

Phillips stays on job

Dannie Phillips will remain Anderson County's acting sheriff until after the Aug. 2 election.

That was the effect of a brief Thursday night special meeting of the Anderson County Commission, which gathered to designate a temporary sheriff until the election can fill the two years remaining in the term of Dennis Trotter, who resigned after pleading guilty June 15 to drug conspiracy charges.

After an unsuccessful attempt by four Oak Ridge commissioners to appoint Harry Thomas, recently retired police captain, the commission approved an adjournment motion that has the effect of preserving the status quo — namely, Phillips will remain acting sheriff until the new sheriff is sworn in after the election.

Staff Sgt. Paul White had bee acting sheriff, and Phillips chie deputy; but the officers switche positions last week afte deciding that state law mad Phillips next in succession afte Trotter's resignation.

Commissioner Jack Keene made the final motion to ac journ, seconded by Roger Robi son. Joining those two commis sioners were Jack Rains, Q.V Leinart, Kenneth "Reece Wallace, Darrell Copelanc Robert McKamey and R.C. Fox

Voting against adjournmer were the same four commis sioners who supported Thomas Mary Matheny, Robert Burdit Helen Norman and Jerr George.

Absent were two other Oa Ridge commissioners, Rober

(Continued on Page 7 No. 1)

Voter registration deadline is Tuesday

Tuesday is the last day of voter registration for Anderson County's Aug. 2 elections, covering a variety of local and state balloting.

New voters, and those over 18 who have not voted in the past four years, are required to register at the Anderson County Election Commission's second-floor office at the Anderson County Courthouse.

Tuesday is also the last day for voters to report address changes (and be assigned a new voting precinct if necessary) before the election.

The election commission last Saturday began receiving completed mail applications for absentee ballots, and such applications must be received at the commission office by July 2 Mail ballots themselves must l returned by 5 p.m. on electio day.

In-person absentee voting run from July 13 to 28; election com mission hours during that perio are 9 a.m. to 6 p.m. Monda Friday, 9 to noon on Saturdays.

This Tuesday at noon is als the petition filing deadline f candidates wishing to challen Dr. John S. Burrell for his se on the Anderson County Board Education.

Regular hours for the electi commission, Room 207, are 9 4:30 Monday through Frida Special hours (9 to noon) ha also been scheduled for t Saturday.

...nce of showers ...ows needed rain

...rival of rain this morn... led a welcome relief ... flowers and browning ...y 8 this morning, there ... inches of rain recorded ... mospheric Turbulence ... sion Laboratory on Il... venue.

...prediction of 40 percent ... showers thoughout the weekend shouldn't have too much of a dampening effect on the big events planned for Downtown Oak Ridge on Saturday. Country singer Bill Anderson will be in the center of the hoopla as he presents a free concert at 5 p.m. Anderson is the spokesman for Po' Folks restaurant and has an interest in the business.

Preceding Anderson's songs, the Sizzlin' Stompers will demonstrate the popular art of clogging. This award-winning group won second place in the novelty division at a Hee-Haw competition last fall. Prizes donated by Downtown merchants will be given throughout the day.

"Hello, Dolly!" at Oak Ridge Playhouse was extended through this weekend, and its concluding performance will be Sunday night.

For this afternoon, the National Weather Service in Knoxville predicts mostly cloudy skies with a 40 percent chance of showers, high temperature in the low 80s and winds variable from five to 10 degrees.

Tonight the forecast is much the same: partly cloudy with the chance for showers at 40 per-

(Continued on Page 7 No. 6)

...de

...ity of Oak Ridge is a step ... appointing a new chief ... The selection process ... final phase with seven ...nts remaining. — Page 2

...ers of the Roane County ...ion met Thursday night ...ston to discuss the pro... budget for fiscal year 1984... work session was split ...ribution of TVA in-lieu... ayments. — Page 6

...nderson County sheriff's ...ent says its officer ...ppropriately in a Saturday morning chase that resulted ...death of a young Oliver ...man. — Page 7

The Oak Ridger

35TH YEAR—NO. 220—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, NOVEMBER 23, 1983

Radiation forestry tests surprise

By ROBIN HEAD INTEMANN

Oak Ridge was one of several test locations around the country where plants and trees were exposed to nuclear radiation 20 years ago in an effort to determine environmental effects and rates of recovery.

The studies, unrelated but similar in scope and purpose, recently caught the attention of Frank McCormick, a University of Tennessee professor of ecology. McCormick headed a study of an irradiated Georgia pine forest in the early 1960s.

The outcome of the Georgia pine forest experiment was something of a surprise to McCormick, who had theorized that the effects of the radiation would not be as long-lasting.

The forest "looked like it was disturbed three to four years ago, not 20 years," he said.

Surprised by the results, McCormick said earlier this week that he plans to coordinate the information from the [illegible] the different [illegible] tions to review environmental effects and recovery rates over an extended period of time. He [illegible] plans to submit a [illegible] the Department [illegible] He wants to study and compare the other irradiated sites to determine the sequence of recovery events.

An isolated site at the Oak Ridge National Laboratory was used to attempt to determine nuclear reactor radiation effects on the environment. John [illegible] a senior [illegible] member in the health and safety research divi-

(Continued on Page 7 No. 2)

Number 2

Radiation

— From Page One

sion, said the ORNL studies were "basically looking to see what effects radiation from an unshielded reactor would have."

The Health Physics Research Reactor at ORNL, in a heavily forested area, was used in the experiment. Because the HPRR is still used, the ORNL research, unlike McCormick's experiment, was not on-going. Witherspoon said that the effect at ORNL "was not devastating." He said that some vegetation was dead and other scraggly in appearance.

"Over the years the radiation has cut into the forest and killed a few more trees," Witherspoon said. He was quick to note that this was based on personal observation only. He said that the forest within 300 feet of the reactor was all that was affected. He added that it is important to realize that the HPRR is an unshielded reactor, which is not typically used outside the realm of research.

Witherspoon said that the radiation from the HPRR is neutron radiation. McCormick's study used gamma radiation. However, McCormick said that he plans to include ORNL in his study proposal.

Of the pine forest study McCormick said, "We were shocked because revegetation seems to have stopped after five years. There were no pines and only a very few hardwood seedlings, most only three or four years old."

"We were wrong," McCormick said of the prediction that a 20-year period would ecologically be an appropriate amount of time for the growth to recover.

The research site was located on a 40-acre section of pine forest at a DOE ecology research facility that is part of the Savannah River Operations office.

The forest was exposed to gamma radiation — a form of radioactive emission that can easily penetrate most materials.

"The purpose was to measure radioactive sensitivity of ecological systems under circumstances of nuclear accident or nuclear detonation," McCormick said.

"Effects were immediate," McCormick said. "Young pines closest to the device browned and died."

During the first five years after irradiation the site was carefully monitored. "Initial recovery was rapid and predictable. Honeysuckle and trumpet vines began moving in," McCormick said. "It was expected that pine seedlings would move in next to replenish the site. That didn't happen."

ing the site was rechecked. McCormick said the surprise was not that the environment was severely disturbed, but rather that it was taking so long to recover. "We were shocked," he said.

In the process of putting together a collaborative study on the recovery rates at other test locations, McCormick said that he contacted his colleagues across the country. "They have observed a similar phenomenon," he said. "The irradiated sites are not yet similar to the control sites."

In addition to ORNL, other test sites include areas in Nevada, Puerto Rico, Colorado, Wisconsin, New York and North Carolina. "The purpose was to have a variety of environments," McCormick said.

A tropical rain forest in Puerto Rico was the site for a study led by he Atomic Energy Commission, also in the early 1960s. Results from that study included in a three-volume report indicate that, "the forest began finally to heal itself by means of specialized mechanisms." These mechanisms include germination of new seeds.

Gamma radiation was emitted into the El Verde rain forest located in the Luquillo mountains to "learn how a rain forest works as a system and under stress," according to the report.

For his own experiment McCormick developed a specially designed device, a portable irradiator, to emit radiation into the forest. He explained that the device was a little larger than a fountain pen and was placed in a lead bucket. A cover over the bucket could be opened and closed to allow the contaminated source, about 9000 curies of radioactive cesium, to be emitted into the forest.

The intensity of the radiation diminished with distance, McCormick said. The areas closest to the device received millions of rads, or dose; while areas farther away were indistinguishable from background levels.

McCormick referred to the recent television movie, "The Day After."

"The movie was well-named," he said. "It only analyzed the events of the day after a nuclear accident. There are far greater circumstances that would take a lot longer to analyse." McCormick said that he'd like to see a movie called "The Year After," because it would provide a better ecological picture.

The UT professor is co-author of a paper to be presented on the research at an April 1984

• Number 8

Radiation

— From Page One

tamination monitored a route beginning on Warehouse Road. It traveled to Fairbanks Road to Emory Valley Road onto Lafayette Drive. Alexander said that it included Midway Road before continuing to Scarboro Road to Union Valley Road at the Y-12 Plant.

Two persons from ORNL, Oak Ridge Associated Universities and DOE monitored the area late Thursday afternoon after the results of the September monitoring became available.

Elevated levels were recorded by the ORNL mobile unit, but no specifics were available, according to Alexander. Consequently DOE decided to conduct a "quick, organized survey to confirm that we didn't have any problems," he said.

"We found about what we expected," Alexander said, explaining that DOE felt comfortable that there was no problem with the levels, although three sites were identified with levels above background levels.

"What we have planned all along is a more methodical plan," Alexander said. "We did, however, have some bit of confidence that we would not find any high readings." This was based on aerial monitoring in past years which would have identified problem areas, he said.

"We want to take a look at soil samples to make sure we understand what we have here," Kaspar said. Because of the presence of cesium, soil samples were taken by ORNL staff in an effort to verify the contaminants.

If the transport occurred in Manhattan Project days it is likely that it relied on the railroad tracks, Alexander said. The presence of radium and thorium could be explained by the uranium tetrafluoride which was transported to Y-12.

The latter transport may have been by truck, although Kaspar said that at this point it is not certain. He said that this would have involved DOE's efforts to decommission American Nuclear in the 1970s.

Of the monitoring process, Alexander said, "The van is equipped with sensitive radiation equipment to make determinations as to whether readings spotted are above background. The process is conducted through computer analysis."

Dates for future monitoring have not yet been set by DOE. Soil samples were also taken at Robertsville Junior High and levels there were 20 microrems.

• Number 3

EQAB

— From Page One

pounds of mercury was unaccountable. In early November the Task Force presented work plans for the study of the cleanup process.

Coutant proposed that the EQAB group be chaired by Jim Harless, city staff member and do "some on-site investigation." He added that EQAB should only look at short-term alternatives and leave the long-term action to the Task Force.

Harless said that the list of locations identified with levels above the guideline is shorter than that of the locations below 12 ppm, but the EQAB review "could stretch out over several months."

Coutant said he would like to see the group begin its review immediately and present some findings at EQAB's regularly scheduled Feb. 2 meeting.

Hibbitts explained that "DOE intends to cooperate everyway we can ... But we don't feel like DOE should initiate action when we're the culprit so to speak."

EQAB members agreed that it should assume an active role in evaluating sites above the guideline level. One point raised by Robert Spore, EQAB member, concerned the areas not yet sampled or identified as potentially problem areas.

Coutant agreed, "I would like us try to identify other contaminated areas where property owners have not yet contacted the city for sampling."

Also on the EQAB agenda was a brief discussion of the proposed Central Waste Disposal Facility. The CWDF is designed to treat waste generated at the three DOE facilities in Oak Ridge only.

Elizabeth Johnson, EQAB member, will head a work session planned for Dec. 6 to prepare a statement for City Council. EQAB was asked by the city to provide comments for inclusion in the Environmental Impact Statement. EQAB's comments will be presented at the Dec. 19 council meeting.

The EQAB work plan for the coming year was approved unanimously following discussion of the mercury situation and the waste facility. Included in the plan, according to priority:

- Work assigned by City Council, city staff and the Planning Commission.
- Monitor mercury interim agency study groups and other contaminants.
- Monitor low-level radioactive waste facilities.
- Examine city ordinances (landscape, erosion control and zoning).
- Investigate litter reduction methods.
- Review the Oak Ridge Marina.
- Review Oak Ridge High School environmental problems.
- Encourage affirmative steps toward environmental awareness.
- Conduct a pedestrian pathway study.
- Conduct a floodway review.

The litter reduction campaign was discussed briefly by Al Chambles and an update of Planning Commission activities was presented by Larry Rackstraw.

Margaret Elizabeth Terrell, Oak Ridge High School representative to EQAB, identified some areas of concern to high school students including signs along the Oak Ridge Turnpike, Rogers rock quarry, and landscaping between the tennis courts and the Turnpike at the high school. EQAB plans to consider these as areas of action for the board.

Several persons attended the meeting including Henry Ruley, Helen Ruley, Susan Williams, Cathie Milloway and representatives from Channel 10 television.

Other EQAB members attending the meeting were Cyd Ryman, Audrey Schlafke-Stelson, Nathan Landay and Margaret Terrell.

• Number 6

McMahan

— From Page One

from any stream even in the Smokies, without some kind of purification," he said. He asked if McMahan would drink such water.

Of the series Postma said, "It is a straightforward misuse of words."

Postma said that he had made note of "pages and pages of misrepresentation." Postma agreed to meet with the Journal reporters on the condition that McMahan would be present. McMahan agreed, although a date has not yet been set for the meeting.

The agreement for Postma to meet with members of the Journal staff prompted applause from the audience.

McMahan was asked if he had taken into account the potential harm the series could have on the Oak Ridge community.

To which he responded, "Sure we took into account the harm, but we also took into account what might happen if we ignored this."

On several occasions McMahan refered to similarities between the series on Oak Ridge and that the Butcher banks.

McMahan was asked several times if the series was meant to harm Oak Ridge.

"There was no harm meant to Oak Ridge," he said.

McMahan was accused of playing with validity and being vindictive. "We're not in the vengeance business; we're in the business of trying to get to the truth," he said.

Asked if he was merely trying to sell newspapers, he responded with an emphatic "no."

"To ignore it (the problem) can be costly, too," he said.

The issue of accuracy was brought up several times.

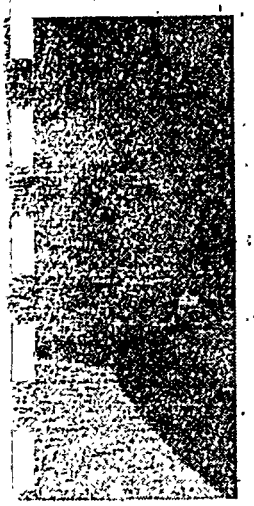
"I think anytime you do an investigative piece all of the facts do not necessarily come out," he said.

Ben Adams, of Adams Craft Hertz and Walker architectural firm, asked what the future for Oak Ridge is in the Journal's editorial policy. To which McMahan answered without hesitation, "It depends on what you're doing."

The Oak Ridger

3 H YEAR—NO. 227—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, DECEMBER 2, 1983

.arians quiz Journal editor on series



McMAHAN
:en on 1979 presiden-
ıign trip with Sen.
Baker.

By ROBIN HEAD INTEMANN

The Knoxville Journal has been publishing a series of articles called "The Spoiling of Oak Ridge," and Thursday that newspaper's editor was the target of some pointed questions when he spoke to the Oak Ridge Rotary Club.

Ronald D. McMahan, editor of the Knoxville morning paper since 1981, was asked six weeks ago to speak to Rotary as part of the club's regular guest speaker program. Before becoming editor, McMahan served for many years as a senior advisory assistant to Sen. Howard Baker.

McMahan told of the changes the paper has made in the two years since it became part of the Gannett chain. Following his brief, prepared talk, McMahan said he would anwser questions from the audience.

Without hesitation hands were raised to question McMahan, particularly on the series about pollution problems in Oak Ridge which has been running this week.

The series began Monday and concludes today. It has included interviews with officials from the Tennessee Department of Health and Environment, Department of Energy and former employes at the Y-12 Plant. As indicated by the numerous questions addressed to McMahan, the attitude of many at Thursday's meeting was that the stories are inaccurate.

"There might be some inaccuracies in the series, but I don't think there are many," McMahan said. "This is not a precise business, especially when you're not getting any cooperation."

McMahan maintained that the reporters working on the series, Randall Beck and Terry McWilliams, made numerous attempts to contact officials at Union Carbide.

"I can only tell you that we have tried repeatedly to talk with officials at Union Carbide ... from Herman Postma on down the line," McMahan said. The efforts were, he said, in vain.

References to the efforts the reporters made to reach Postma were made several times by McMahan. Postma, director of the Oak Ridge National Laboratory and a Rotary Club member, stood up to respond.

He said that he had in fact received requests from jou nalists for interviews, but h chose not to interview becaus "facts are often lost."

Postma went on to cite e: amples of statements taken ou of context, including a quot from Ed Aebischer, spokesma for ORNL. Postma explaine that Aebischer had conducted three-hour tour of ORNL, e: plaining a number of treatmer practices in the process. Whe the group arrived at White Oa Creek, which meets drinkir water standards, Aebischer wa asked if he would drink it. T which he said, as reported in th Journal, "Not right now."

Postma said that he would n drink the water either, becau: of ducks and geese in the wate "I would not drink the wat

(Continued on Page 11 No. 6)

pand EQAB's mercury monitoring role

HEAD INTEMANN
ık Ridge Environmental
Board met Thursday to
new role in monitor-
rcury situation and to
vork plan for the com-

s Coutant, EQAB chair-
he board that he met
with Lyle Lacy, city
, and Bill Kaspar and
Hibbitts, both DOE of-
iscuss what should be
it the soil samples
parts per million

explained that with
uidelines recently in-
y the state for mer-
els in soil, the samples
into two groups. The
w the guideline re-
ction, while the group
ppm requires action yet to be determined.

It was proposed, Coutant said, that EQAB coordinate a special study group — an Interim Actions Study group — to evaluate the mercury concentrations above 12 ppm and to review alternative actions.

Hibbitts and Clayton Gist, Oak Ridge Associated Universities scientist who has conducted the sampling program for DOE, attended Thursday night's meeting at the Municipal Building.

"This is an interim action," Coutant said. "It could be two years before any useful information comes out from the (interagency) Task Force. We can't wait two years for people to find out what's going on in their own backyards — literally."

The Task Force, comprised of representatives from the state, DOE, the Environmental Protection Agency and TVA, wa formed last spring to develc work plans for the cleanup pollution, including mercury ar other contaminants, problem. The group was formed followin the disclosure by DOE that du ing a 20-year period 2.4 millic

(Continued on Page 11 No. 3)

DOE checking radiation transport route

By ROBIN HEAD INTEMANN

Motivated by recent community concerns, the Department of Energy conducted a monitoring program for radioactivity in certain parts of Oak Ridge and found three locations Thursday with levels slightly above background.

Two areas identified indicated levels of 25 microrems, one at Athens and Brisbane, the other near the guard gate on Scarboro Road. An area in front of Jefferson Junior High School had a level of 20 microrems.

Alexander said that these levels are not high for the region because of natural occurrences such as shale outgrowths.

The areas are not considered by DOE to be a problem, Jim Alexander, DOE spokesman, said today. He explained that a staff of six monitored a route once used to transport radioactive material. The exact dates of the transport aren't known, although there are two possibilities.

The uncertainty about dat was corroborated by Bi Kaspar, assistant manager safety and environment at DO who said, "We have hypothes to work with. One is we're tal ing about Manhattan Proje days. Another is DOE assistance in decommission of

(Continued on Page 11 No. 8

The Oak Ridger
35TH YEAR—NO. 228—482-1021 OAK RIDGE, TENNESSEE MONDAY, DECEMBER 5, 1983

Y-12 workers claim mercury trauma

By ROBIN HEAD INTEMANN

Results of the survey, conducted by the Atomic Trades and Labor Council, are not yet complete, said Robert Keil, president. Keil said that while he never worked at Y-12 he is aware of the circumstances under which many ATLC members worked.

Keil said that 57 responses have been cleared through the classification division and are still in progress.

"Several complained about problems with their teeth and having to have them pulled. I've talked with others who have nervous disorders that they believe are attributable to their work."

Keil said that because the lithium isotope separation process in buildings Alpha I and II was classified, mercury was referred to as "solvent." For many years, workers didn't use the word mercury, he said.

George Jasny, in charge of production technology staff in the lithium process, agreed. "Sure you couldn't use the word, but everyone knew that 'solvent' was the word for mercury." He added that it got to the point of a joke to refer to mercury, in any form, as solvent.

But Jasny said he knew of no one who got sick while involved in the process. A report released by the Department of Energy in October identified a number of health-worker studies and found similar conclusions.

The effects of mercury in the environment and on health have been of increased concern since DOE disclosed last spring that 2.4 million pounds of mercury was unaccountable over a 20-year period. The losses began in the 1950s.

As reported in The Oak Ridger Oct. 26, the conclusion of the DOE report stated, "There were no significant signs of mercurialism during the time of the operations, nor have the studies conducted since shown any long-term effect from these mercury exposures."

Despite DOE's report, Keil said that he knows of many former employes who plan to file suit because of health problems they attribute to the "solvent." However, Keil chose not to identify those persons.

One person who has filed suit is James C. Wilson, of Lake City. Brian Trammell, representing Wilson, said that a suit was filed in federal district court in Knoxville Aug. 23.

Trammell said Wilson's suit has since been withdrawn because it is necessary to file a formal complaint with DOE before litigation in a court of law can begin. "We need to exhaust the administrative procedures before embarking on legal action," he said.

"Right now we are preparing an administrative claim against DOE," Trammell said. "We are putting together proof and evidence that will show that he was injured."

The injuries, according to the complaint filed in Knoxville, include "extreme stomach pains, nose bleeds, headaches and periods of intense nausea."

Wilson worked at Y-12 from 1951 to 1961. Trammell said that Wilson was "hired as a general laborer who worked in one of the buildings in the early stages of the mercury process."

Another who plans to file a complaint is Christine Case, who blames the death of her husband; Wayne Wallace, on mercury poisoning.

Trammell said he expects to see a number of complaints filed in the near future against DOE because of the mercury situation.

(Continued on Page 9 No. 5)

• Number 5

Mercury

— From Page One

neighbors

State checking quality of studies performed by DOE, contractors

Frank Munger

OAK RIDGE — As part of its investigation of Oak Ridge pollution problems, the state is checking the quality of studies by the Department of Energy and its contractors.

Not everything has met with approval so far, according to Steve Allison, a field engineer with the state Department of Health and Environment.

Allison, who spends his time scrutinizing environmental documents when he isn't out walking in areas of pollution concern, said the state is not fully satisfied with the work of Oak Ridge Associated Universities.

ORAU is DOE's prime contractor in charge of sampling and analyzing pollutants around town. It's a program of wide scope; thousands of soil samples have been taken. Mercury, of course, has received the greatest attention to date.

The results from those samples are the basis of decision-making for the task force set up to study the pollution situation after the state, DOE and the U.S. Environmental Protection Agency reached the now-famous Memorandum of Understanding in 1983.

"We've had some questions about quality assurance," Allison said, referring to the manner in which the samples have been taken.

Those questions have not been answered, he added, noting that ORAU is reexamining the process in which samples are taken and analyzed.

"There appears to be a problem with cross-contamination," Allison said. That means the samples are not being separated adequately, he said, opening the possibility of materials mingling and making analysis all but meaningless.

This could be particularly significant if "control" samples are mixed with those where high levels of pollutants are found. Control samples are those taken from areas believed to be uncontaminated to establish a "background" — or natural — level of elements. Those samples then are compared with samples taken from contaminated areas to determine the amount of pollution.

"If someone tries to establish a number as being background, then you have a problem," Allison said. "The way they're handling (the samples), it was quite probable that some of the materials could get from one sample into another."

The state official explained that if one soil sample contained 2,000 parts per million of mercury, even a minute piece of that sample dropped into a "control" sample could seriously skew the results.

"You could end up with a background of five parts per million, when it's really less than one," Allison said.

Questions also have been raised on whether ORAU is actually doing the work it was assigned, he said.

"It doesn't appear from all the comments I have that ORAU has followed their task force plan," Allison said. "That has not been resolved to my satisfaction."

Among other things, he said, ORAU has not taken soil samples at various depths as was requested. In some instances, only surface samples were taken at spots on the floodplain of East Fork Poplar Creek, he said.

"They said they were going to go back and do that later," Allison said. "But that's not the way I read the work plan."

It would be difficult to place too much emphasis on the need for accurate and complete information when trying to assess possible remedial actions, he said. Without proper analysis on the front end, investigators are wasting their time, he said.

"If we're not getting from the studies what we want, then we'll just have to fill in blanks later on," he said. That would be time-consuming and expensive.

■ ■

TOP SECRET: One of the most closely guarded documents these days at DOE headquarters is the report from the Process Evaluation Board. The board members spent more than a year assessing two competing uranium-enrichment technologies to help decide the future direction of the government's multibillion-dollar business.

Energy Secretary John Herrington will be making some decisions in the near future, and the PEB report is expected to provide the backbone of his decision-making.

Either advanced gas centrifuge or atomic vapor laser isotope separation will be chosen as the government's method of the future for making nuclear reactor fuels.

A DOE source in Washington says there is only one copy of the PEB report, and only a handful of officials have access to it.

"Let's say you really have to prove a need before seeing it," the source said.

In fact, those officials have to sign for it whenever the report is in their possession. Is that to prevent leaks to the press?

"It is to ensure that the secretary can make his decision in the most rumor-free atmosphere as possible," the source said.

Witch's cauldron' may develop into technological testing field

y BECKY PURSER
urnal Reporter

OAK RIDGE — The Department of Energy reservation here, nown by many as a notorious witch's cauldron" of pollutants, may prove to be a fertile field for testing new environmental technologies.

In 1987, DOE and Martin Marietta plan to blast test patches of contaminated soil with currents of lectricity, turning the soil to glass nd keeping the pollutants from escaping into water sources.

The process, developed by Battelle at Pacific Northwest Laboratory, is known as "vitrification."

"It's been tested successfully at Western sites, where the soil is dry, but we're going to try to adapt it to Oak Ridge's humid environment," said ecologist Dean Eyman, who manages DOE's national hazard waste program for defense facilities.

Vitrification is just one idea.

DOE will be posting notices during the next few years, looking for more ideas for cleaning up the myriad environmental problems in Oak Ridge.

"Basically what we're saying is we have a very interesting test bed for universities, the private sector and others to come in and test their technologies," Eyman said.

"Oak Ridge is very much open to any kind of verifiable, innovative approach," he said.

The environmental problems at Oak Ridge affect all three complexes — Oak Ridge National Laboratory, the K-25 uranium enrichment plant and the Y-12 weapons plant.

Though dozens of chemicals and radioactive substances are involved, the most notable contamination problem surfaced in 1983 when DOE admitted that 2.4 million pounds of mercury have escaped into the environment during 40 years of operating the Y-12 weapons plant.

The new cleanup methods will be demonstrated through DOE's new Oak Ridge Waste Technology Center, announced earlier this fall.

A prime spot on the reservation for trying new techniques is the site of an environmental experiment done in the late 1960s and early 1970s called the "oil farm." The experiment was a flop.

During the project, DOE folded gallons of waste oil into the soil on a plot at the Y-12 weapons plant. The goal was to test the ability of soil micro-organisms to break down the waste oil.

But the oil has remained in the soil over the years and still needs cleaning up.

"Environmental laws have gotten much tighter" in recent years, Eyman said.

Methods for that were acceptable 10 or 15 years ago for handling or storing hazardous waste are now obsolete, he said.

"Now when you're talking about hazardous waste, the name of the game is treatment," he said.

One trend in cleaning up waste sites is the development of portable treatment equipment, which could be used for cleaning up more than one site.

DOE is looking at the idea of using transportable kilns to break down organic pollutants in sludge basins. Any radioactivity in the sludge could be filtered out safely, Eyman said.

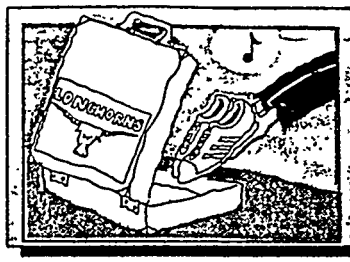
Another technology that could be toted from site to site is a system that would remove contaminated soil, wash it and replace it.

Eyman said the test projects will focus on hazardous waste sites on the reservation that don't need immediate cleanup.

Positive view

No. 4 rating a plus

east tennessee B1



UT's hour of truth

Athletic program at crossroads

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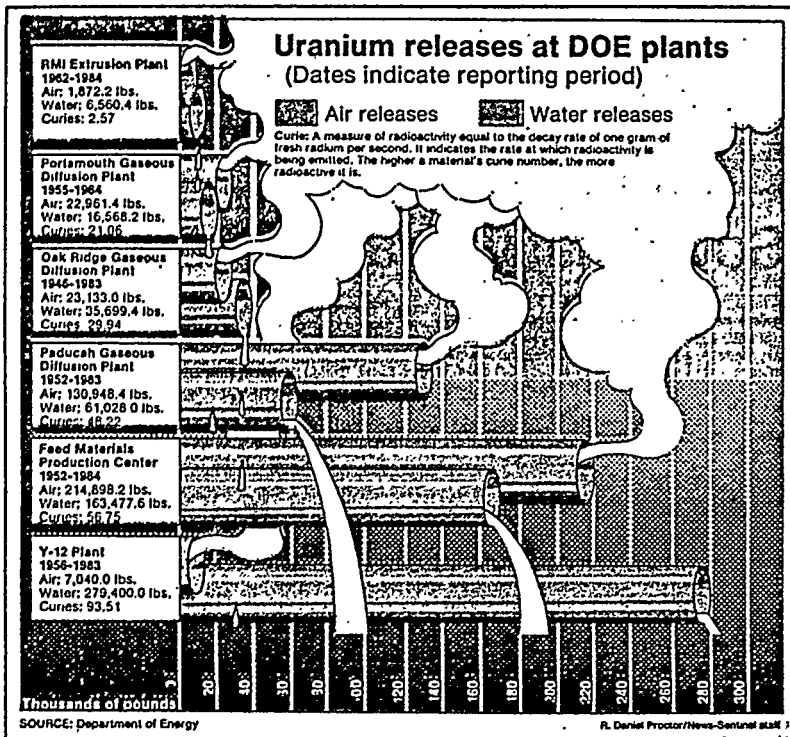


SOURCE: Department of Energy

R. Daniel Proctor/News-Sentinel staff

Ohio accident revealed hazards at uranium plants

by FRANK MUNGER
News-Sentinel staff writer

PIKETON, Ohio — A light, but steady snow was falling as the evening shift reported to work on March 7, 1978, at the Portsmouth Area Gaseous Diffusion Plant.

The last snowfall of winter would serve as a blessing a short time later when alarms sounded and emergency crews scurried about to prevent a disaster.

Dean Bussa, a special equipment operator, had been on the job only a couple of months at the Department of Energy plant. But when trouble came, he smelled the danger.

Soon after reporting to work that day, Bussa drew his duty assignment and hopped aboard one of the plant's three "straddle buggies" — odd-looking vehicles that are used to transport heavy cylinders of uranium around the sprawling complex. He wheeled the buggy over to a product-withdrawal building to pick up a 14-ton cylinder of molten uranium hexafluoride. Then he headed toward a storage lot, where the cylinder would be placed with hundreds of others awaiting further action.

Bussa entered B-Lot, found the designated parking space and hit a lever to lower the cylinder onto on a wooden cradle.

"Next thing I knew there was smoke everywhere," he told his bosses a few hours later in an interview, which was recorded for an official investigation report.

After Bussa smelled the yellow-tinged smoke, he knew what had happened and "high-tailed it out of there" to seek help.

The cylinder had fallen from the vehicle's arms that supported it, landed at a angle on the cradle 10 inches below and ruptured.

A foot-long crack in the thin-walled cylinder released 21,125 pounds of uranium hexafluoride in less than five minutes. About three-fourths of the material left the government reservation in a cloud created by the hot liquid interacting with the atmosphere. Five employees actually drove through the gaseous plume as they left the plant on a perimeter road.

Three plant buildings were evacuated, and ventilation systems were shut down to keep the gas from being drawn inside.

Outside, there was confusion over how to contain the cylinder's leak. Tarps were thrown on the leaking container, but they were of no help. Pieces of dry ice applied to the crack kept sticking together as workers in protective suits with respirators tried desperately to cool the cylinder and change the liquid back to a stabilized solid form.

About 2½ hours after the 4:36 p.m. accident, crews stopped the release of uranium hexafluoride by covering the cylinder with snow.

On the whole, the accident could have been a lot worse, investigators concluded in a three-inch-

please see ACCIDENT, page A10

DOE plants release tons of uranium

© 1985 Knoxville News-Sentinel

by FRANK MUNGER
News-Sentinel staff writer

OAK RIDGE — About 1.2 million pounds of uranium have been released into the air and water at six government uranium-processing plants in Tennessee, Ohio and Kentucky.

Another 70 million pounds of uranium are buried at those plants, some of it so haphazardly as to pose a threat to groundwater and other resources.

This radioactive pollution has come since World War II, much of it in the 1950s and 1960s as the U.S. government raced into the Atomic Age with little thought to the environmental legacy it was creating.

While improved emission controls installed in recent times have cut the losses greatly, the plants still send significant quantities of uranium into the atmosphere and streams and rivers each year.

Large releases have occurred as the result of accidents or spills, but the bulk of the discharges have come during normal operations as the plants produce and process materials for atomic weapons or nuclear power reactors.

Details of these uranium releases are contained in a report compiled by the Department of Energy over the past six months at the request of The News-Sentinel.

The plants, all of which come under the direction of DOE's Oak Ridge Operations office, include the Y-12 Plant in Oak Ridge; the Oak Ridge Gaseous Diffusion Plant; the Portsmouth Area Gaseous Diffusion Plant at Piketon, Ohio; the Paducah Gaseous Diffusion Plant in Kentucky; the RMI Extrusion Plant at Ashtabula, Ohio; and the Feed Materials Production Plant at Fernald, Ohio.

Some of the figures on the Fernald plant were released earlier this year by U.S. Rep. Thomas Luken, D-Ohio, who intervened with a specific request on that plant's pollution.

There also are a few gaps in the report, specifically on Y-12, where environmental data on the plant's first 13 years of operations — 1943-1956 — cannot be found,

please see URANIUM, page A10

URANIUM POLLUTION

Our nuclear legacy

Uranium is the focus of the Department of Energy's Oak Ridge office, which oversees six government plants that process uranium for purposes related to nuclear weapons and nuclear energy.

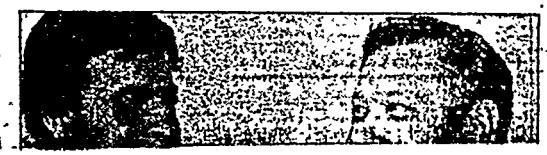
While performing that work over the past four decades, these plants have also released large quantities of uranium into the environment.

Last December, News-Sentinel staff writer Frank Munger, who covers DOE facilities in Oak Ridge, asked DOE just how much uranium had been discharged to the air and water and how much waste was buried at those sites. While the information was being compiled, Munger studied the potential effects on the environment and the residents who live near the plants.

In March, he and News-Sentinel photographer Michael Patrick traveled more than 1,500 miles visiting the government plants for a first-hand look.

The result is a six-part series, "Uranium pollution: our nuclear legacy."

Shiites offer to move hostages to Western embassy in Beirut



uranium pollution: our nuclear legacy

Uranium

continued from page one

DOE officials said. In addition, some of the release tabulations were only available through 1983.

"We've tried not to put a good face on bad news," said Joe La Grone, DOE's Oak Ridge manager, after releasing the information.

Among the findings:

■ The Y-12 plant, which makes nuclear warhead parts from highly enriched uranium, has discharged nearly 280,000 pounds of uranium into the creeks around it. This is more than any other plant. Even though releases to the creeks have been reduced, they still have averaged more than 1,000 pounds a year since 1980.

Another 36,000 pounds of uranium has been released into local creeks and the Clinch River from the nearby Oak Ridge Gaseous Diffusion Plant.

■ The Fernald plant near Cincinnati is the worst air polluter, having released 215,000 pounds of uranium into the atmosphere. However, the radiation associated with the Paducah plant's releases was higher.

Fernald deals mostly with depleted uranium, which contains less than the normal amount of the fissionable U-235 isotope and is not as radioactive. The solubility of the uranium gases released at Paducah also figures into the potential dosage to the public.

■ Y-12 far and away is the biggest waste generator, with more than 50 million pounds of uranium buried in the Bear Creek Burial Grounds. Another 1 million pounds of uranium waste generated at Y-12 was buried at Oak Ridge National Laboratory during the 1940s and early 1950s.

Fernald has about 11.5 million pounds buried on site, while Paducah has more than 7 million pounds of uranium in its atomic graveyards.

■ The Portsmouth plant, which enriches uranium for fuel in commercial nuclear reactors and reactors that power nuclear submarines, has discharged 23,961 pounds to the air. Of the major production facilities, it probably has the lowest discharges. About 16,500 pounds has been released into the creeks that leave the plant and eventually drain into the Ohio River. Only 11,264 pounds is buried at the plant site.

■ The Oak Ridge Gaseous Diffusion releases has changed dramatically releases," said La Grone, who has headed DOE's Oak Ridge office for the past two years. "I think the overall pattern is that the releases are on a downward trend. I'm encouraged by that.

"But I think it's also something that warrants continued attention on the part of the department and this office. It's something I have a personal interest in, as I have with all of our environmental problems."

Wayne Hibbitts, DOE's special environmental coordinator who helped put the report together, said the uranium releases sound bigger than they are.

"While there are some sizable figures, the radiation exposures and the impact on the environment and public health are quite small," he said.

Uranium, like other radioactive materials, emits radiation as it decays. But it does so unusually slowly, which means there is less radiation associated with it, Hibbitts said. The half-life — the time it takes for half of the material to decay — of uranium is millions of years.

Alpha particles are emitted by uranium when it decays. They will not pass through the skin, but they can be dangerous when trapped inside the body. The principal concern is through ingestion or inhalation, in which case the radiation can destroy tissue and, in some cases, cause cancer.

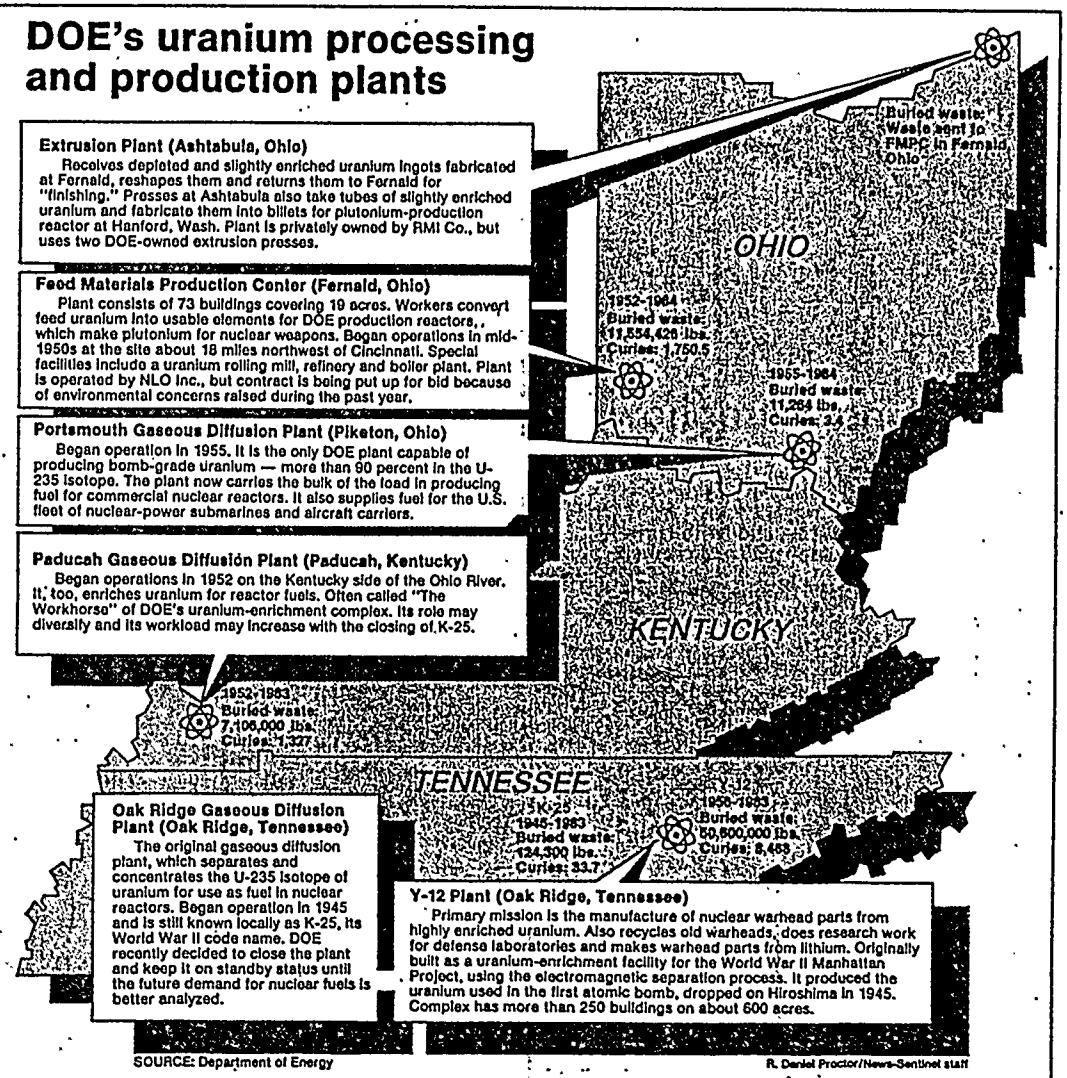
Hibbitts said research, which DOE is in the process of adopting to its studies, shows that uranium is absorbed by the stomach more easily than previously thought. It also indicates that inhaled uranium particles stay in the lungs longer than most dose calculations account for; the longer the particles stay, the more radiation received. In the case of insoluble uranium, the radiation dose is 20 times greater than once estimated.

Uranium also produces "daughter" products as it decays, such as radium and radon gas, which are potentially much more hazardous than uranium itself.

While uranium is very slow to decay, the other side of the coin is that it will be around a long, long time.

"It will be there essentially forever, because we're talking millions of years," Hibbitts said. "It's

DOE's uranium processing and production plants



SOURCE: Department of Energy

R. Daniel Proctor/News-Sentinel staff

Hibbitts said. "For years and years, we have tried to keep our radiation discharges down to levels to where the public would be exposed to a small part of our standards."

public sometimes were only a thousandth of the accepted standard, so most of the dose calculations were based on how much material was released, how it was

contamination," Hibbitts said. "In most instances, you're talking about oxides or insoluble uranium, and we haven't found significant problems. I definitely can't say it

does work for DOE with government-owned presses that help refine uranium tubes for plutonium production reactors. It has released about 1,900 pounds of uranium into the air and discharged about 6,500 pounds into water around the plant.

"Obviously, if you look at the total releases over the past 30 years, there have been some high

should not be scared, adding. "As best we can tell, the risk is very, very small as a result of our emissions."

The radiation dose to the public from plant releases is far less than what they unavoidably receive from natural sources of radioactivity, such as rocks, soil and the sun, he said.

DOE's attitude toward its ura-

uranium releases there, entirely new filtering systems are on the drawing board. But it will be years and millions of dollars before they are installed. Other plants face similar situations.

"Environmental protection in general is getting an enormous amount of attention, and our resources are being devoted to it,"

the uranium-processing plants have cut their emissions, it is becoming more difficult to meet the regulations, Hibbitts said.

"We're still within the standards, but we're close now," he said. "We have to do a better job of verifying those figures (radiation doses to the public)."

In the past, he said, doses to the

prove that previous estimates on exposures to the residents are accurate or lower than thought.

The problems with uranium buried at the plants vary with the location, type of uranium compounds involved and the methods used to bury it.

"If uranium is soluble, certainly you could get some groundwater

halted after officials discovered that leakage and flooding caused thousands of pounds of uranium to be discharged into local creeks.

Uranium believed to have come from the burial trenches at the Fernald plant has been found in drinking wells in the area.

Next: Tracing uranium after it leaves the plant.

Emergency crews clean up around a 14-ton cylinder of molten uranium hexafluoride that ruptured in a 1978 accident at the Portsmouth Area Gaseous Diffusion Plant. The cylinder fell from the arms of a transporting vehicle.

Accident continued from page one

thick report.

"Conditions which contributed to reduction of the impact ... must be recognized as pure luck," they said.

Most of the work force from the day shift had already gone home. The wind direction was away from the plant, and falling snow and freezing temperatures slowed the traveling uranium cloud.

No injuries were reported and exposures to radioactivity were within DOE's allowable limits, officials said.

"Under less favorable circumstances, injury and possibly even fatalities could be expected from such a release," the report said.

Damage to the environment was "minimal," according to the report, although a fish kill was noted in a nearby stream, which received runoff from the accident. About 1,500 pounds was released into the Scioto River, which eventually enters the Ohio River.

The report also noted there was "no adverse reaction from contractor employees, the media and the public."

The problem was blamed on a faulty straddle buggy, which had been in the shop for repairs just the day before.

But apparently it was fortunate the same type of accident had not happened many times before, because all three of the plant's transport vehicles were "in extremely poor condition" and dropping cylinders "had become common and an accepted practice," investigators found.

Bussa, in fact, had dropped four or five cylinders in his short tenure before the incident and even dropped one a week later. All were attributed to unreliable equipment.

DOE says a number of steps have been taken since the 1978 accident to prevent a recurrence. Most important, perhaps, cylinders no longer are transported while their contents are still hot.

Aiming for ALARA

Radiation exposures weighed against benefits, DOE says

by FRANK MUNGER
News-Sentinel staff writer

OAK RIDGE — The Department of Energy's official policy on radiation exposures is known as ALARA — as low as reasonably achievable.

Its predecessor policy was ALAP — as low as practicable.

So, what do those terms mean?

Bobby Davis, chief of DOE's Environmental Protection Branch in Oak Ridge, says they mean that government plants intend to keep their radioactive emissions below standards applied by regulatory agencies and to continue reducing the emissions as much as economically feasible.

"One takes into consideration the cost involved with exposure reductions, and the benefits of the (plant) activity taking place," he said. "You have to weigh those things to come to a decision where the optimum cost-benefit point is. You have a balance of risks and benefits."

The "fundamental premise" of ALARA, Davis said, is that there is some risk associated with any radiation exposure. Thus, the aim is to keep those doses as low as possible, he said.

When considering exposures to workers at the plants where nuclear materials are processed or handled, DOE looks at different factors than when considering exposures to the general population around the plants, he said.

"Workers have a choice on whether they are involved, and they receive remuneration for that risk," Davis said. "Therefore, the allowable exposure limits are larger."

With regard to residents of the area, many of whom don't have a choice about exposures received through plant emissions, DOE considers other factors, he said.

"Then you have to look at how society benefits," Davis said.

In the case of the Y-12 plant, which produces parts for nuclear warheads, the nation's security is a consideration. At other plants, which produce fuel for nuclear power plants, the electricity provided to the public is a factor.

"You have to make a judgment on whether the benefits outweigh the risks associated with any radionuclides coming from the plants," he said. "I don't think there is a hard-and-fast formula that you come to or a table that you compare."

The occupational standard for workers exposed to radiation at nuclear-related plants is 5 rems per year. A rem, a unit of radiation, is the equivalent of 500 chest X-rays. Under ALARA, Davis said, DOE tries to limit the exposure to individual workers to one-fifth of the standard — or 1 rem per year.

Allowable exposures to the general population are much lower. New U.S. Environmental Protection Agency regulations, which went into effect last month, permit individuals to receive 25 millirems to the entire body and 75 millirems to the vital organ involved — in the case of uranium, it is the lungs. A millirem is one-thousandth of a rem. A dose of 25 millirems is the equivalent of 2½ chest X-rays.

In the case of plant workers, radiation doses are measured by badges or devices worn by them. Doses to the general population, however, are estimates based on amount of material released, which is measured by the plant's monitoring equipment, and the study of weather conditions that may affect the travel of those radioactive materials.

Pollution production

Some uranium escapes recovery at Y-12 'factory'

© 1985 The Knoxville News-Sentinel

by FRANK MUNGER
News-Sentinel staff writer

OAK RIDGE — Y-12 is the Fort Knox of the government's uranium industry.

Workers here process quantities of highly enriched uranium — worth five times its weight in gold — and shape it into components for nuclear bombs and warheads.

Y-12 is one of the nation's oldest nuclear production plants. It is also one of the closest to a sizable population. Several hundred yards away is Scarboro, Oak Ridge's predominantly black community, separated from the plant by a ridge.

Plant construction began in 1942 during the World War II effort to develop the first atomic bombs. Back then, Y-12 was a uranium-enrichment plant, which used the electromagnetic process to separate the first quantities of U-235 — the highly fissionable isotope of uranium — for the A-bomb dropped on Hiroshima.

Soon after the war, the plant was transformed into a bomb factory. It has been expanded and refashioned many times to meet the growing sophistication of the U.S. nuclear arsenal.

The plant is three miles long and two-thirds of a mile wide. It has 233 buildings on 600 acres inside its perimeter fence.

"We're a very large and complicated machine shop," said Todd Butz, the plant's environmental coordinator. "We don't build nuclear weapons per se at the Y-12 plant, but one portion of them, and we use uranium to do that work."

please see POLLUTION, page A8

URANIUM POLLUTION
Our nuclear legacy

Third in a series

Uranium is the focus of the Department of Energy's Oak Ridge office, which oversees six government plants that process uranium for purposes related to nuclear weapons and nuclear energy.

Munger

While performing that work over the past four decades, these plants have also released large quantities of uranium into the environment.

Last December, News-Sentinel staff writer Frank Munger, who covers DOE facilities in Oak Ridge, asked DOE just how much uranium had been discharged to the air and water and how much waste was buried at those sites. While the information was being compiled, Munger studied the potential effects on the environment and the residents who live near the plants.

In March, he and News-Sentinel photographer Michael Patrick traveled more than 1,500 miles visiting the government plants for a first-hand look.

The result is a six-part series, "Uranium pollution: our nuclear legacy."

Michael Patrick/News-Sentinel staff

A Y-12 truck dumps its load of nuclear trash onto the ground while Earl Chapman, equipment operator at the burial grounds, stands by waiting to cover it with dirt.

Uranium buried in 65-acre cemetery

by FRANK MUNGER
News-Sentinel staff writer

OAK RIDGE — The air was heavy and still, pierced only by the insistent beeps of a truck backing up its nuclear load.

The truck's bed reared up like a scared horse against the darkening rain clouds, and a pile of boxes slid to the ground.

A nearby worker donned his protective respirator, hopped into a bulldozer and quickly covered the boxes with dirt and packed them into place.

This is a scene repeated many times daily at the Bear Creek Burial Grounds, one of the largest atomic graveyards in the world.

The boxes contained old air filters contaminated with uranium residues from the Y-12 nuclear weapons plant nearby. Dump trucks bring a wide assortment of trash to the burial site — paper, wood, rubber, glass and plastic, mop heads, barrels and shoe covers.

But the loads have one thing in common, according to Todd Butz, Y-12's environmental coordinator.

"It's all uranium of various assays," he said. "It's not pure uranium, but materials contaminated with uranium."

At other parts of the 65-acre cemetery, which opened in 1955, uranium is buried by itself according to size and composition. One pit receives large chunks of waste uranium. Another holds curlicue turnings from Y-12 machine shops. Still another burial area holds stacks of 5-gallon metal cans filled with uranium sawdust.

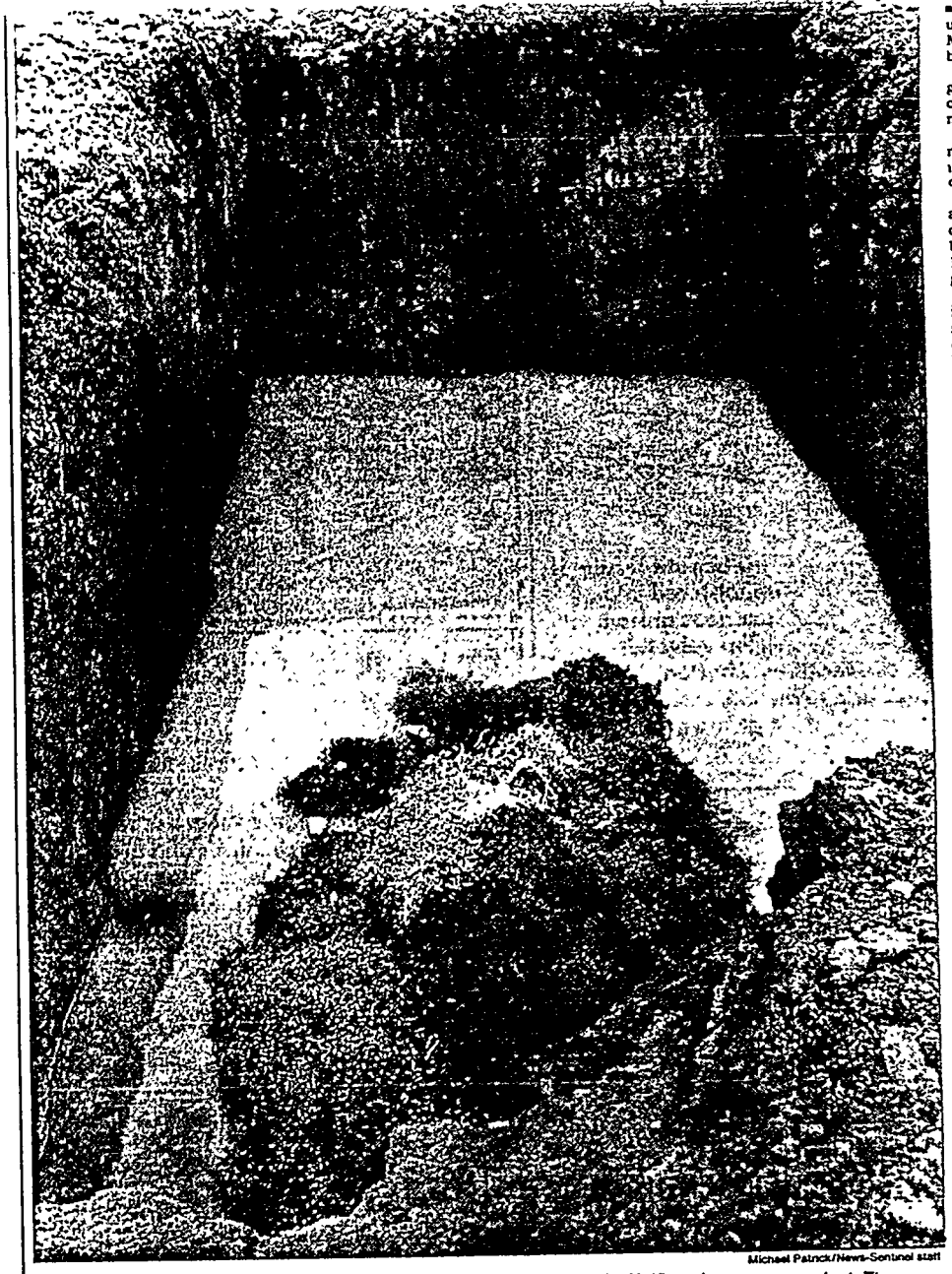
When the pits are filled, others are dug. Uranium is big business at Y-12.

The amount of material processed and stored at the nuclear weapons plant is highly classified. But the vol-

please see URANIUM, page A8

Gore reacts, page A9.

Chapman dons his respirator before burying the uranium-contaminated waste.



Michael Patrick/News-Sentinel staff

This burial pit contains uranium shavings from machine operations at the Y-12 nuclear weapons plant. The uranium slivers, which spontaneously ignite, are covered with water to prevent fires.

ume of waste generated is tremendous. More than 50 million pounds of uranium is buried here.

In fact, space is running out at the graveyard, which also receives some nuclear trash from the K-25 plant several miles away.

Space problems aside, the state of Tennessee wants Y-12 to close the operations in the Bear Creek drainage basin because of damage to the environment.

That was the "bottom line" of a Memorandum of Understanding the Department of Energy signed with the state and the U.S. Environmental Protection Agency in 1983, which set the stage for a cleanup program, Butz said.

More than anything else, it was the burial grounds that prompted a high-ranking state official to term Y-12 a "witch's caldron" of pollution woes at a congressional hearing. Uranium is a significant part of that brew.

An apparent improvement in the situation will come with the relocation of the burial ground, a plan long in the works.

However, a proposed $10 million Central Waste Disposal Facility, which would receive radioactive waste from all Oak Ridge plants, is on indefinite hold because of an apparent misunderstanding between the state and DOE officials.

DOE and its contractors spent two years working on the design and preparing environmental assessments for the facility, which was to be built on Chestnut Ridge overlooking the Y-12 site.

State officials, however, have raised questions about the use of shallow trenches for disposal of the nuclear waste, and they want every possible alternative explored before they approve the proposed design.

At the current rate of disposal, space at the Bear Creek complex will run out in about a year, Butz said. There's a possibility of extending it another year, if the state approves breaking ground in a new section, Butz said.

"There's a lot of concern about running out," Butz said. "At that point, we really need to find a method of hai interim storaj CWDF."

Meanwhile veral steps to lessen the en wastes.

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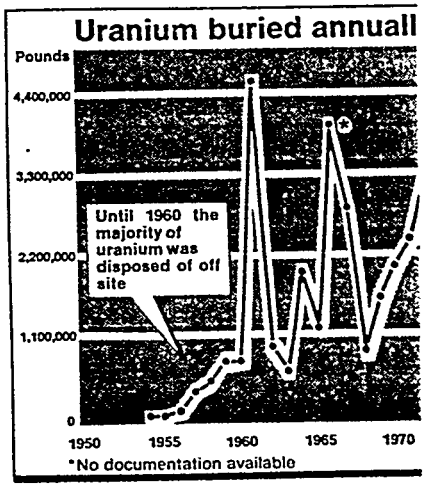

Pollution

continued from page one

Uranium is handled in two principal forms at Y-12 — uranyl nitrate, which is uranium dissolved in nitric acid, and uranium metal.

"We convert the uranium compounds to uranium metal," Butz said. "It is machined and fabricated into what are called individual components that are assembled into what's called a sub-assembly. That's a portion of a nuclear weapon."

A lot of bomb parts have come out of the plant over the past 40 years. So has a lot of pollution.

"Compounds of uranium are emitted from the exhaust and ventilation systems in the production areas," Butz said. "They pick up quantities of uranium, fairly small ones, and they come out through the ventilation system.

"The types of production processes that are on the end of those ventilation systems are standard machine-shop operations, where there's a lathe, drill presses — those types of machines. There are also chemical processing operations, where the scrap and the material left over from the production processes are dissolved, recovered from the scrap and put back into a form to be used again."

As an example, Butz said, when workers mop floors in the production area, the mop picks up small particles of uranium. The mop water is then sent through processes to recover the uranium, but some of it remains and is eventually discharged into local creeks.

Y-12 tries to control its air emissions through the use of filters on its ventilation stacks. There are two types.

One is called a baghouse, which uses cloth columns that air passes through to capture the uranium like a vacuum-cleaner bag. The other is a "high-efficiency particulate filter" made of paper or plastic that picks through.

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Next: P ernment's

uranium pollution: our nuclear legacy

Cold War fears added to pollution of streams

by FRANK MUNGER
News-Sentinel staff writer

OAK RIDGE — Some researchers call it the "Cold War anomaly."

A couple of feet down in the sediments of Watts Bar Lake an unusual deposit of pollutants — including uranium — can be found.

The depth correlates to the late 1950s and early 1960s, a peak production period at the Y-12 nuclear weapons plant miles upstream.

"We were scared to death of what the Russians were doing, and I think it's reflected there," said Ralph Turner, an environmental geochemist at Oak Ridge National Laboratory.

While Y-12 churned out nuclear bombs and warhead components at a frenzied pace, the plant also released waste products in heavy amounts to streams in the area.

It was during the Cold War period that 2 million pounds of mercury was lost to the Oak Ridge environment, a situation well documented over the past couple of years. Generally speaking, wherever mercury is found in the community, so are uranium and other pollutants.

Uranium is present in elevated amounts in the East Fork of Poplar Creek and Bear Creek, which receive drainage from the plant at the east and west ends. The creeks eventually join and flow into Poplar Creek, which empties into the Clinch River near the point where it becomes Watts Bar Lake.

About 280,000 pounds of uranium has been discharged into the creeks from Y-12 over the past three decades, according to figures compiled by the Department of Energy.

The amounts are probably higher than that, but DOE cannot find environmental records for Y-12's first 13 years of operation. While uranium releases have been reduced significantly over the years, they still average more than 1,000 pounds a year since 1980.

Bear Creek, which flows out of a series of tributaries in the basin that includes Y-12's nuclear burial grounds, is home to the biggest uranium deposits.

At times in the past, virtually no aquatic life survived in the creek's heavily polluted stretches near the plant. Some of the waste practices have since been halted, yet, even now, only the heartiest of fish swim in the creek's shallow upper reaches.

Researchers, however, are reluctant to blame the creek's toxicity on the uranium. There are too many other possible contributors, equally or more toxic, they say.

"Very preliminary indications do not suggest it is the key to toxicity in the fish," said Jim Loar, an aquatic ecologist at ORNL, who is studying the Bear Creek situation. "We have no evidence that uranium by itself is the culprit in all of this. I'm talking about present day and leaving it open as to the past because I don't know what the levels were then."

Before pointing the finger at uranium for the creek's problems, Loar said, researchers would first look at toxic cadmium and aluminum, both of which are present as well. Loar and others are doing a one-year in-depth characterization of the creek to help determine future remedial actions.

There is no question that uranium is toxic to fish and other creek life at high levels. If it's high enough, everything dies and the results become obvious.

But at what point uranium begins to have subtle effects on fish and other creek inhabitants is difficult to determine.

Dr. Victor Archer, a clinical professor at the Rocky Mountain Center for Occupational and Environmental Health, said less noticeable toxic effects could include altered spawning habits and reduced growth.

Loar agrees that is a possibility, but the Oak Ridge studies are not that detailed at this point.

"We're just trying to see the chemical effects from the physical effects," he said.

Chris Shuey, a water specialist with the Southwest Research and Information Center in New Mexico, said there is a paucity of studies done on the toxic effects of uranium to humans and aquatic life. But he said the uranium levels in the Y-12 area appear to be "significant" and deserve further investigation.

Turner, who has studied the sediments in the Bear Creek drainage system, said uranium deposits as high as 5,000 parts per million have been found in the creek's upper stretch. A more typical level is 1,000 to 2,000 parts per million, he said.

Because uranium also is present in nature, researchers looked at an uncontaminated stream for comparison. The uranium in its sediments was measured at about 1.5 parts per million.

The uranium levels in Bear Creek decline downstream except for certain areas, such as a monitoring station dam five miles from Y-12, where sediments tend to pile up.

The primary source of much of Bear Creek's pollution, including the uranium, is the notorious S-3 ponds, four large settling basins that were used for many years as a chemical dump at Y-12. The ponds received tons of solvents and other liquids laced with uranium and other toxic metals.

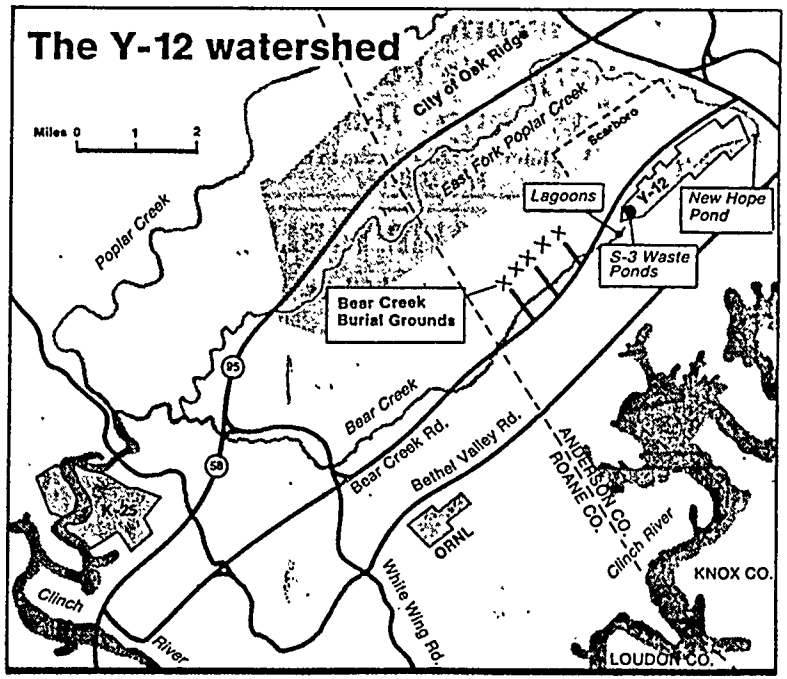
About 1,000 feet west of the S-3 ponds are two lagoons, which were used to catch the overflow and seepage from the ponds. On a seasonal basis, the lagoons flooded and sent some of their contents spilling into Bear Creek. The S-3 ponds are in the process of being closed out, and researchers are studying what to do with the lagoons, which still contain heavy uranium deposits in their sediments. The lagoons may be dredged and the sludges incorporated in the S-3 cleanup.

Core samples taken from one lagoon average about 1,600 parts per million, while the other averages about 4,900 parts per million, Turner said.

Uranium deposits in the East Fork of Poplar Creek, which winds through sections of the city, are much lower from the samples taken so far. According to Wayne Hibbitts, the Department of Energy's special environmental coordinator, the highest level found in East Fork samples has been about 500 parts per million.

New Hope Pond, the settling basin built in the early 1960s to help reduce plant discharges on the east end, probably kept the uranium losses from being higher.

"It has acted as a trap since 1963," Turner said.



Uranium continued from page one

ume of waste generated is tremendous. More than 50 million pounds of uranium is buried here.

In fact, space is running out at the graveyard, which also receives some nuclear trash from the K-25 plant several miles away.

need to find a different area or a different method of handling it. Either some kind of interim storage or some final decision on CWDF."

Meanwhile, Y-12 officials are taking several steps to reduce the huge volume and lessen the environmental hazard of [illegible]

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Data gathered for uranium study decision

By LAURA SIMMONS
Journal Reporter

The Department of Energy is collecting data needed to decide whether a study should be done on public health effects from uranium releases at seven DOE facilities, including those in Oak Ridge, officials said Monday.

Last April, at a congressional hearing on uranium releases at the DOE plant in Fernald, Ohio, U.S. Sen. John Glenn, D-Ohio, requested that the federal Centers for Disease Control conduct an epidemiological study to determine health effects on the public from the Fernald releases.

Joe LaGrone, head of DOE's Oak Ridge Operations division, which oversees the Ohio Plant, followed up on Glenn's request by contacting the CDC Center for Environmental Health in Atlanta, DOE spokesman Jim Alexander said.

CDC responded by outlining the kinds of data it will need to decide whether the Fernald study is justified. The data concern how much exposure was possible to the public from forty years of plant operations.

"We have got to know whether people were exposed before we look for an effect," said William Bibb, DOE director of research and waste management.

Last week LaGrone wrote another letter to CDC asking for advice on data collection for all seven DOE uranium facilities, including the Oak Ridge Y-12 weaponry plant, the K-25 gaseous diffusion uranium enrichment plant and Oak Ridge National Laboratories.

"If CDC determines it's warranted, I'm certain he (LaGrone) would request them to do that study," Bibb said.

It will take months to assemble the data needed to decide if the epidemiology study is necessary, he said.

"We can collect the data (on the seven plants) simultaneously," Bibb said.

If DOE collected the data on a plant-by-plant basis, the process could take years, he explained.

"I think the manager's feeling is that CDC is the most knowledgable organization in the government to make the determination of whether the releases have caused any health impacts," he said.

"DOE could make that determination but I don't think its credibility would hold up," Bibbs said, stressing the need for an independent agency to decide whether the study is necessary.

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50 million pounds of uranium buried in Oak Ridge trenches

By RANDALL BECK
Journal Reporter

More than 50 million pounds of radioactive uranium waste from the Y-12 weapons plant in Oak Ridge has been buried in trenches since 1954, officials confirmed Tuesday.

In addition, officials said, tons of uranium dust — created in the top-secret processes that produce parts for America's nuclear warheads — have been released into the air, ground and streams of Oak Ridge.

While the volume of historical burial and accidental releases is high, an official at the Tennessee Department of Health and Environment said the actual radioactivity of the material may be relatively low.

"Our understanding," said spokesman Jean Inman, "is that the curies (a measurement of radioactivity) from the uranium are relatively low ... There is no way that we can respond to the (DOE) report right now."

The Y-12 plant fashions nuclear warhead parts from uranium and many other materials. The plant contributes parts for every weapon in America's arsenal, including the MX Missile, Pershing II, Trident and Cruise Missile.

Until 1984, the plant was operated by Union Carbide Corp. for the Department of Energy.

Mike Huggins, deputy commissioner of health and environment, said he was told the Energy Department report will detail the burial of 51 million pounds of uranium chips near the Y-12 plant from 1954 to 1983.

But Energy Department sources told The Knoxville Journal that the report also reveals the amount of uranium that has escaped from the plant as a result of more than 1,000 secret processes that turn 9½-pound disks of uranium into bomb parts.

Uranium dust — created as the so-called buttons of uranium are turned on lathes at the plant — has escaped through the plant's stacks, although the facility is fit with an elaborate filter system catch uranium particles before t are discharged to the air.

In addition, officials said, ur ium has been lost into two stre that flow near the Y-12 plant. I Creek and East Fork Poplar Cr

See Waste, Page

Waste

From Page A1

leave the 500-acre facility grounds, contaminated with uranium.

Internal DOE reports show uranium levels in Bear Creek exceed 130 parts per million in some areas — more than 30 times the level occurring naturally. In East Fork, uranium has been found at more than 1,000 parts per million.

Huggins said he has not been told how uranium waste, generated at a rate of nearly 1 million pounds a year.

"I don't have any details on how it's buried, what kind of casks it might be in or any other details," Huggins told The Tennessean in Nashville.

In the past, Energy Department documents show, there has been very little effort to keep the radioactivity of the buried uranium from leaking into nearby groundwater.

The primary waste products from the machining processes at the plant are depleted uranium chips and uranium alloy chips. Uranium is depleted after the plant's processes remove most of the highly enriched — or fissionable material — uranium.

Until recently, an internal DOE report says, the uranium chips were taken to Dempster Dumpsters behind the buildings and then buried in classified burial trenches. Some of those trenches are atop Chestnut Ridge north of the plant.

Uranium buried in trenches does not necessarily threaten the public, said Michael Mobley, director of the state division of radiological health.

The real danger, Mobley said, arises when uranium dust is released into the air and inhaled by nearby residents. External exposure to uranium, Mobley said, is not a big concern.

"If it is buried and gets into the groundwater," Mobley said, "it is going just a minimal amount (of radioactivity) that gets out. But if uranium is blown into the air, people can breathe it."

In addition, Mobley said, "you have to have a whole lot of uranium to cause a radiological problem ... It takes tons of uranium to make a curie of radioactivity."

Mobley said he cannot cannot evaluate the health hazard of the material yet, but he understands the DOE report will include possible dose estimates of radiation exposures from the material.

Mobley said the Energy Department officials Tuesday refused to let him see the report. Union officials in Oak Ridge were briefed on the report recently.

Sam Fife, a health and safety representative for the Atomic Trades Labor Council, which represents workers at the Oak Ridge facilities, said DOE officials recently notified union representatives of the information that 51 million pounds of uranium were buried on the grounds.

"I just wonder how much exposure may have been brought to the working men there in the facility," said Sam Fife, a health and safety representative for the Atomic Trades and Labor Council.

He said it "kind of disturbs me" to learn of the buried material after-the-fact.

"It makes me wonder about the other chemicals and whatnot they're handling," Fife said.

There are differing viewpoints on the dangers of radiation exposure from such material.

DOE spokesman Wayne Range said the enriched uranium used at Y-12, where some 6,000 people are employed in the production of nuclear components for weapons, is only slightly more radioactive than natural uranium in the earth and the depleted uranium is less radioactive than what is found in nature.

"We're talking about a very discreet difference from what you would find in nature," Range said.

Mobley said the state has tried in the past to find out how much uranium has been buried or released from the weapons plant.

"But the whole operation is basically out of bounds to us," Mobley said. "Whenever we tried to get some control over what was going on, we got our hand slapped."

Robert Alvarez, a consultant to the Environmental Policy Institute in Washington, D.C., said the uranium releases and burial could pose a danger to the public.

"It gives off various kinds of radiation, and there's human evidence to suggest it's not safe," Alvarez told The Tennessean.

Without its radioactivity, he said, uranium "has the same toxic effects as lead. It's like saying they dumped 51 million pounds of lead there."

Pollutants found here common to urban areas

Most of the contaminants detected in Oak Ridge could be found in other urban areas, according to at least one member of the interim study group evaluating pollution problems here.

"If a similar type of analysis was conducted in Knoxville you'd find the same things," Ralph Turner, a study group member and researcher in the environmental sciences division at Oak Ridge National Laboratory, said.

An assessment of the contaminants detected in Oak Ridge is underway, but it is too early to reach any conclusions, according to those involved.

The interim study group was formed last fall at the request of city staff members to examine the short-term implications. The group is headed by Jim Harless, city staff member, Phil Walsh, an ORNL researcher, and Clayton Gist, with Oak Ridge Associated Universities. Charles Coutant, a member of the city's Environmental Quality Advisory Board and also with ORNL, works with the group.

"The short-term action by the interim study group is to make recommendations to the task force for things to be done within the next year," Turner said.

The task force was formed last spring after the Department of Energy disclosed that there were 2.4 million pounds of mercury for which they could not account during a 20-year period. The task force is comprised of representatives from various agencies including the department of health and environment, ORNL, ORAU, TVA, DOE and the U.S. Geologic Survey.

The highest number of contaminants were detected at two locations along East Fork Poplar Creek. At a location near the Atmospheric Turbulence and Dispersion Laboratory, 35 were found. Thirty-six were detected at the other East Fork Poplar Creek location past the residential area near the Oak Ridge Turnpike.

This accounts for less than one-third of the 140 priority pollutants and radionuclides that might have been found. The Environmental Protection Agency has established a list of 126 chemicals identified as priority pollutants; that is, contaminants most likely to be present. Four-

(Continued on Page 13 No. 8)

What others read a

Local resic

Editor's note — The following article was published in the Miami, Fla., Herald on Wednesday, Feb. 8. It was the page one, lead story in the paper's Science and Medicine section. The Herald is the largest newspaper in Florida with daily circulation of well over 400,000. Frank Munger, who apparently wrote this in a free-lance capacity, is a staff member of the Knoxville News-Sentinel assigned to cover Oak Ridge. The Oak Ridger reprints the story in full so that our readers may be familiar with what is reported about Oak Ridge in other parts of the country.

By FRANK MUNGER

OAK RIDGE, Tenn. — Oak Ridge was born a government secret.

It remains a government town. Uncle Sam owns two-thirds of the property, and more than 20,000 workers get

bout Oak Ridge —

ents depicted as fearful of pollution

aychecks from him. ernment gives the city to make this a nice live.

sed to be simple here. vent to work, did what ere told and came hanking the Lord they ave to work in the coal

there are doubts. hers check their s for mercury or other chemicals. Parents bout their kids wading ted streams. Retired ees want to know if years ago is killing day. Even worse, they if the government is the truth or telling all.

gressional investiga- s conducted on Oak pollution last year. is underway on 1,710 of uranium missing n Oak Ridge plant, material to make 85 bombs. A closed-door hearing this week in Washington was set to discuss where the uranium might be and why 27 secret computer tapes dealing with it were erased or damaged.

One man in particular is trying to make things simple again in Oak Ridge. It's not an easy task.

East Tennessee farmland, thousands of acres encompassing three valleys, was purchased for disguised purposes in 1942. A stampede of construction gave way to a mission so vital, so hurried that experimentation and production were often the same.

Work was underway on the atomic bomb that was dropped on Hiroshima in 1945. Oak Ridge was nursed with wartime safeguards and classification. It was watched by armed soldiers atop wooden towers. Rarely has a secret been so well kept. Only after World War II did most Oak Ridgers learn of their role in history.

The war was won and the fences came down in 1949, allowing unrestricted access to the atomic city. But it wasn't until last year that the walls of secrecy began to crumble.

What emerged was an ugly picture of government at work. It began last spring as a painful, expensive headache for the U.S. Department of Energy. It soon became a cancer attacking the trust built here through 40 years of well-paid jobs, secure benefits and promises of safety.

Pollution was the first and most damaging blow to public confidence.

Toxic mercury once used to produce nuclear bombs now resides in city creeks and East Tennessee rivers. So does radioactive uranium, thorium, plutonium, cesium and dozens of other hazardous chemicals. They are in the soil, too.

In years past, the city dredged the East Fork of Poplar Creek for flood control, using creek sediment as fill dirt at sewer construction sites around town. The contamination was unwittingly spread to two junior high schools, the city's civic center, a playground and along public roads.

The source of pollution was the Y-12 nuclear weapons plant, one of three giant research and production complexes on DOE's sprawling reservation here. Y-12 makes bombs and warhead parts from highly fissionable uranium, placing an Oak Ridge on virtually every nuclear weapon in the U.S. arsenal.

State health investigators made their first serious inspection of the plant grounds a year ago. What they found was a "witch's caldron" of pollution problems, according to Assistant Health Commissioner Mike Bruner.

Unlined burial trenches for radioactive waste were bleeding their contents into the ground water. Ponds used as chemical dumps were so acid that metal barrels were thrown to them like meat to hungry wolves. The same chemicals that chewed the drums into disappearance and drank their neutralizing agents were leaching into nearby Bear Creek.

PCB-laced oils seeped from other dump sites and formed smelly black pools near the creek. Everywhere inspectors looked, they found Y-12 officials using short-term solutions to long-range hazards.

(Continued on Page 13 No. 1)

Mercury

— From Page One

Kettering Institute.

This is the first public statement of such a group. Kaspar said, "It is my belief that they will be in the peer review mode, to comment on the overall process and to guide the whole thing."

After giving this general overview of the environmental problems, Kaspar then outlined the problems and remedies peculiar to each of the three plants — the Y-12 Plant, Oak Ridge National Laboratory, and the Oak Ridge Gaseous Diffusion Plant.

While almost all of the mercury problems were created many years ago, Kaspar pointed out that are two potential new sources of mercury releases into East Fork Poplar Creek — contaminated soils and drainage sumps, and New Hope Pond.

"At New Hope Pond, there is a bypass under construction," Kaspar said, adding that once that is completed, the accumulated sludges will be dug up. Kaspar did say that there is no more mercury drainage into East Fork, but "rain runoff picks up residual mercury at a rate of about one ounce per day."

Councilman David Thomas asked Kaspar, "When are the signs along East Fork Poplar Creek coming down?" These signs were erected last year to warn people from swimming in the creek or eating fish caught there.

Kaspar answered that the signs were part of the interim measures being taken, and that final actions will be decided by the multi-agency task force. "I don't think they'll be taken down until the Task Force ends. A couple of years, anyway."

Kaspar said that most of the buildings at Y-12 where work was conducted with mercury "have been stripped," except for the Alpha 4 building, which is awaiting more funding. This was the building where a water line break caused residual mercury ORNL stem mostly from the older nuclear waste sites, and that DOE "has spent over $50 million in the past ten years in studies." He added that DOE has built drains around the suspected sites and has capped some of the older ones, and that the U.S. Geological Survey is also on site conducting tests.

Well testing on site is used to determine where the leaks are coming from, while well tests off-site show that there is not any contamination.

Kaspar said there have also been extensive studies made of White Oak Creek and Lake, and he said, "I feel confident that over 90 percent is coming from old burial grounds," constructed in the 1940s and 1950s. "We are continuing to attack the problem at its source."

"Is the White Oak Lake outfall clean water?" asked Councilman Alan McNutt.

Kaspar answered yes, adding, "We share the state's goal of reaching levels as low as possible. Twenty years ago, the situation was much worse."

McNutt asked if the levels of contamination were measurable three to five years ago. After hearing that the levels were above state limits, McNutt said, "It is important that the situation has changed."

Of the three plants, ORGDP seems to have the fewest environmental problems.

Kaspar said that recent state compliance report was "generally complimentary," but he added, "that there are sludges that have accumulated over time that need to be disposed of."

"In conclusion, we have a lot of activities underway," Kaspar said. "Our resources are devoted." He added that the number of full-time personnel working on environmental issues has increased from 20 to 200 at Y-12.

"There still may be some surprises out there," he continued, "and we pledge to continue communications."

Kaspar ended his presentation by inviting Council members on a tour of the plants and locations mentioned in his talk.

Means

— From Page One

Oak Ridge Turnpike and it in turn enters Poplar Creek at the railroad crossing on Blair Road above the Oak Ridge Gaseous Diffusion Plant.

Poplar Creek winds through the ORGDP complex, paralleling Perimeter Road to the Turnpike, then empties into the Clinch River at Mile 12, two miles downstream from Gallaher Bridge.

White Oak Creek empties into the Clinch River at Mile 21, two miles downstream from Melton Hill Dam. The East Sewage Disposal Plant in Oak Ridge no longer discharges into Melton Hill Lake, as all sewage now goes through the new plant in the west end of town, leaving Clinton as the only large source of waste from Norris Dam to Melton Hill Dam.

Deformed fish are not confined to New Hope Pond. In fact, I'm having trouble finding anyone who believes there are any deformed fish in that pond. Emmett Moore, retired captain of the Y-12 Fire and Guard Department, says, "I don't think anybody ever dropped a hook in New Hope Pond." He adds, "I used to catch some good bluegills behind Beta One (Building 9204-1) before the pond was built."

David Cox, who grew up in Oak Ridge and is now a biologist in the Environmental Sciences Division at Oak Ridge National Laboratory, has been sampling fish in the East Fork of Poplar Creek downstream from New Hope Pond since the mercury story was made public. Cox says, "There are some good centrarchids in the East Fork. It's too bad nobody can enjoy catching them." The family Centrarchidae includes the black basses, sunfish, redeyes, bluegills and crappie. The most common centrarchids in the sewer system. Others carried the material to special sumps. It was never dumped into the basement.

The health of employes working with the ADP program was monitored. Anyone with bad teeth was restricted from working with "solvents." Those with excessive mercury in their urine were moved until the matter cleared up. Virginia Means worked with a group called Bio-analysis which monitored employe health. She says, "We hated to run mercury samples because we seldom found any."

When the Fusion Energy Division of ORNL moved into 9201-2 after the ADP program was phased out, I was assigned to the building as electrical maintenance supervisor. This was in 1960. We continued to find pools of mercury in wind tunnels and remote corners for several years after that. When a puddle of mercury showed up, the industrial hygiene people immediately cleaned it up, taking special precautions to protect the workers in the area.

The period from 1953 to 1963 was a time when there wasn't much concern worldwide about health hazards connected with mercury. The July 1969 issue of the Sport Fishing Institute Bulletin reported that Sweden had placed controls on the use of mercury compounds for treatment of wheat seeds, paper pulp and chlorine manufacture. Mercury poisoning had caused a drastic decrease in many bird populations in Sweden.

It was shortly after that when the rest of the world learned of the Minimata, Japan, situation. During the period from 1953 through 1960, there had been 111 deaths

Fork Poplar Creek..

As for the S-3 ponds, Kaspar said, "They need to be cleared out," adding that there haven't been any additions to the ponds since January and that all four of the ponds have been neutralized. Kaspar said that sludge removal will begin in mid-1985.

DOE has two facilities on the drawing board for treating different kinds of waste: The CWPF, which will handle all the low-level radioactive wastes generated by the three plants, and the Central Pollution Control Facility, which handle all the liquid process wastes generated at Y-12. Both are planned long-term solutions to many of the environmental problems at the plants.

Kaspar also touched on what he called "the most visible issue to the citizens of Oak Ridge — fly ash," which comes from the four coal-fired steam plants at Y-12. He said that the baghouses (method for screening out fly ash) are currently under construction, and that first pair should be operational by next October, with the final pair online the following year.

DOE is also conducting well studies, Kaspar said, to determine which ORNL waste sites are leaking into nearby surface groundwater systems.

Kaspar said the problems at

bluegills.

Cox says there are more fish in East Fork today than there were when he played along the creek in boyhood. Apparently, Union Carbide has improved the water quality even if the accidental mercury content makes it inadvisable to eat fish from the Creek. Long before the creek was posted to warn people that the fish shouldn't be eaten, most Oak Ridge parents wouldn't cook the fish their children brought home, knowing about the possible chemical contamination of the stream.

J.W. Chesney says he used to take water samples from the East Fork when he worked at the Comparative Animal Research Laboratory. They never found any trace of radioactivity. That was before the days of the process using mercury.

On the subject of deformed fish, Charles C. Coutant, who is Cox's supervisor, says that sudden temperature changes will cause skeletal deformities in newly hatched fry. Cox says he has produced deformed fish in the laboratory by subjecting them to high temperature during the larval stage. Cox says he has never taken an abnormal fish in his sampling of the East Fork. He says if they were in New Hope Pond some of them would escape from time to time.

Coutant has worked on fisheries research in Watts Bar Lake for several years, including tracking of striped bass (rockfish), and says he has not seen any deformed fish in the lake, even though they are not uncommon in public waters.

I've been fishing in Watts Bar Lake since the summer of 1945 and I've caught only two abnormal fish in all that time. In the winter of 1982-83, I caught a white bass (locally known as "stripes") with a minor skeletal deformity. It was healthy, putting up a good fight on roc and line and was released. A second white bass had a crescent shape

hunting season in the fall of 1969 because fungicides used on seed grain had caused mercury contamination of breast meat in game birds. Mercury was found in ducks in North Dakota and on Lake St. Clair in Michigan in the summer of 1970.

By June 1970, all Americans were concerned about mercury contamination. The Province of Ontario ordered paper mills to stop using mercury in their processes and banned commercial sale of fish from Lake Erie and other waters.

In the fall of 1969, samples of fish were taken from Melton Hill, Cherokee, Ocoee No. 1, Hiwassee, Wilson, Pickwick, Kentucky, Chickamauga, Watts Barr and Wheeler Reservoirs. Tests were run with an atomic absorption spectro-photometer and only fish from Pickwick had more than the FDA limit in force at that time of 0.5 parts per million. The limit has since been raised to one ppm.

At present, only one area other than the East Fork is closed for human consumption of fish. That is the North Fork of the Holston River which was polluted by mercury from the Olin plant at Saltville, Va. That plant has been closed several years and final cleanup is expected within the next year.

The mercury story has hurt Oak Ridge and surrounding area. I talked with a young woman in the press room at the Recreation Vehicle trade show in Louisville Nov. 29. She had been following the story as part of her work with an industry publication and asked how long we had lived in Oak Ridge. When I replied, "Since 1945," she asked "And you're still drinking the water?" I assured her that we didn't get our water supply from the East Fork. She said the publicity implied that half the population was in danger of severe mercury poisoning.

Dave and Susan Fisher, who operate Bayside Resort on

• Number 4

Mercury

— From Page One

the vapor form," the report says.

But since 1970, a wide range of environmental studies have been done in the Oak Ridge area, which are detailed in the report. Beginning with a 1970 report by Merwyn Sanders, former Y-12 environmental coordinator, eight separate reports of mercury contamination in the area have been done by Union Carbide researchers.

The new report also refigures the amount of mercury lost or unaccounted for, and disputes DOE's previous assessment of 2.4 million pounds, saying that new calculations reduce that amount by 400,000 pounds.

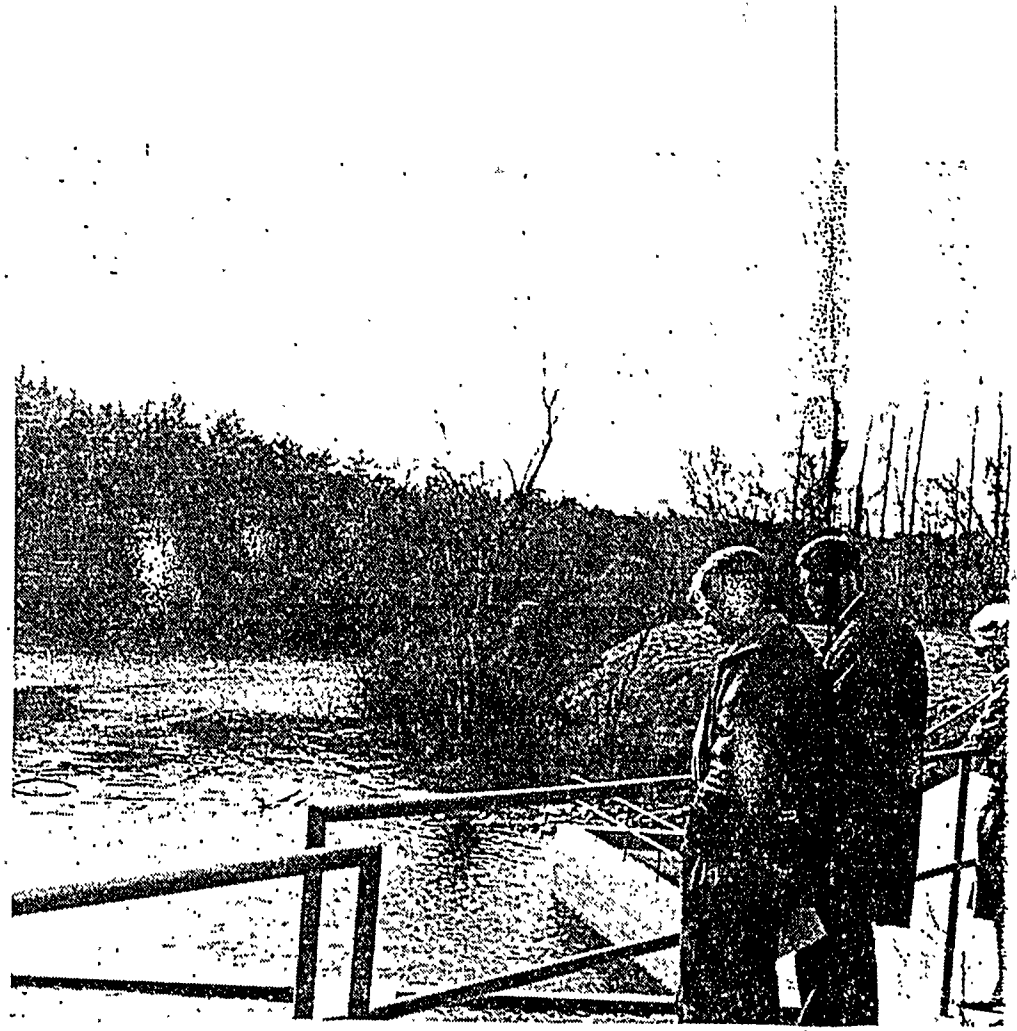
Part of the problem is the difficulty of keeping up with mercury under the best circumstances, the report says, quoting a 1975 Environmental Protection Agency report: "....For the (chlor-alkali) industry as a whole, only about 50 percent of its annual mercury consumption can be accounted for. This does not imply that mercury is indiscriminately lost to the environment; rather, it is most difficult to estimate where mercury may accumulate in the system and to what extent."

According to the report, 700,000 pounds of mercury are might be as high as the equivalent of 900,000 pounds," the report says.

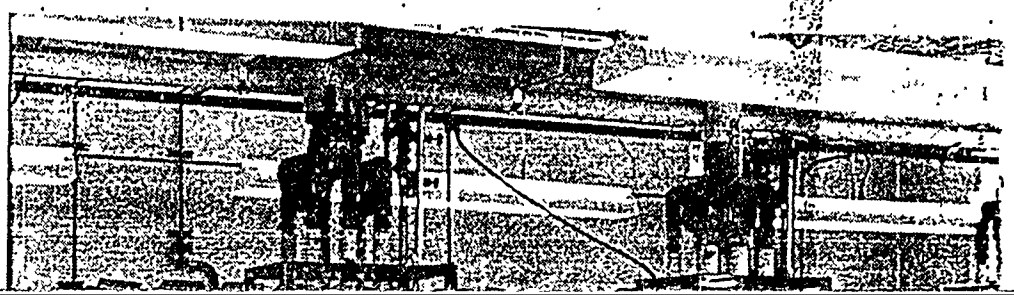
The discrepancy comes from partially-filled tanks and from tanks that were leaking when they were received, according to the report. Rust Engineering Co., which conducted the mercury receiving operation for AEC, did not weigh the mercury as it was received from GSA, and what records the firm did keep were "destroyed as scheduled some years ago." But, the report says, at the time the bomb-making project was most active, in the latter half of the 1950s, half of the world's supply of mercury was in Oak Ridge.

Even before the process was shut down, Y-12 started to return some of the excess mercury to the GSA stockpile, the report says. "One of the first shipments in 1957 involved thousands of flasks (classified material deleted) that had never been opened at Y-12..."

Currently, the report says, samples of the outflow of New Hope Pond are taken every Monday morning. Over the 24-month period from 1981 through 1982, the overall average concentration was 1.3 parts per billion of mercury. That compares of a 2.0 ppb standard set by the EPA in-



Chuck Coutant, chairman of the Environmental Quality Advisory Board, left, and City Councilman Larry Dickens, looking at White Oak Lake during Monday's tour.



groundwater or into the stream, and 1.3 million is "not accounted for." Researchers have examined where the mercury that was not returned to the General Services Administration might have gone, and have determined that 400,000 pounds of mercury previously thought to be unaccounted for has now been accounted for in several ways. The largest amount now accounted for seems to be part of sludge sold to the Mallory Battery Co. in 1972, and records from Mallory show that 174,000 pounds, possibly as many as 200,000 pounds, were recovered.

The new figures were compiled by the 24-member team working all summer; the earlier report, from 1977, was done by two persons working part-time over two weeks, the new report says.

One of the problems the researchers had is "the big uncertainty in the amount of mercury actually received at Y-12.... no 'hard' data on the actual amount shipped or received could be located."

The mercury was shipped in the 1950s during the Cold War push for the hydrogen bomb, and conditions at Y-12 were similar to the Manhattan Project era, the report says. "One AEC (Atomic Energy Commission, predecessor to DOE) official interviewed guessed the shortage

stream water quality guideline of 0.05 ppb set by the state of Tennessee.

Part of the report, on worker health, was released by DOE and reported on by The Oak Ridger in October. According to the report, mercury concentration in the workplace air was monitored frequently, and many readings during 1955 exceeded guidelines of 0.1 mg per cubic meter. The report adds that urinalysis data also showed elevated readings, and that individuals whose test remained at a high level for several specimens were reassigned to another work area until the tests returned to a normal level.

In addition, the report says, persons with a history of albuminuria, kidney problems or hypertension were not allowed to work with mercury.

The report also says, "No effects of chronic mercurialism were found in a 1974 follow-up study of those workers who had shown the highest mercury urinalysis values. A 1983 epidemiology study by ORAU (Oak Ridge Associated Universities) found no significant differences between Y-12 mercury workers and Y-12 non-mercury workers and a U.S. general population group in the death rates from all causes or from a number of different kinds of cancer."

Joe La Grone, manager of the Department of Energy's Oak Ridge Operations, looking into one of the many fish tanks at Oak Ridge National Laboratory.

• Number 5

Waste tour

—From Page One

him feel better about the situation.

"The tour allayed a lot of my fears," Dickens continued. "I can clearly see that DOE is taking positive steps to rectify the situation."

Joe King, assistant city manager, had never been on a tour of the sites, and said this morning, "I thought it was well done — it was well worth our time. Personally, what I saw visually was not what I expected — I expected something more dramatic. I assume they showed us everything — pollution is hard to see."

Mayor Roy Pruett, who has seen some the sites before, was impressed by DOE's willingness to be open and to communicate the environmental problems.

"I was impressed by the calibre of the people we met at the different plants," the mayor said this morning. "That is an indication of their sincerity. Joe La Grone's desire to be open, and Kaspar spending a whole day with us, also indicates to me their sincerity."

The tour stopped at coal piles at each of the plants, where DOE and Carbide officials demonstrated efforts to reduce the runoff from the piles. When it rains, the water carries off coal "fines," a highly acidic liquid.

"Coal fines seem to be a serious insult to the environment," Pruett said, adding that this was an environmental problem at the plants he hadn't considered before, and he said he appreciated the fact that DOE showed the group these areas, and the chemical processes involved in neutralizing the runoff.

Tom Oakes, an ORNL scientist, explained that the runoff is mixed with a sodium hydroxide solution, which precipitates out the coal fines. He added that in two years, a processing facility will be completed to handle these runoffs.

Jim Harless, city codes enforcement officer, said that he saw improvements Monday since the last time he toured the plants, last summer with the state and Environmental Protection Agency officials. Harless is the city staff representatative on EQAB.

"I saw improvements, especially the stream around New Hope Pond," Harless explained. New Hope Pond is located at Y-12, and DOE is in the process of diverting water around the pond so that the sludges on the bottom can be removed and processed. "Th stream to bypass the pond new," Harless said, in cor parison to his last tour.

Harless also said he saw oth improvements — more we water monitors all over th reservation, and that DOE h already started treating ORGDP liquid wastes generat at Y-12 until the new waste pr cessing facility is constructed.

Until now, the Y-12 liqu wastes were stored in the four 3 ponds on the west end of th plant. DOE is already in the pr cess of nuetralizing these pond and will eventually clean up th sludge on the bottom of the ponds as well.

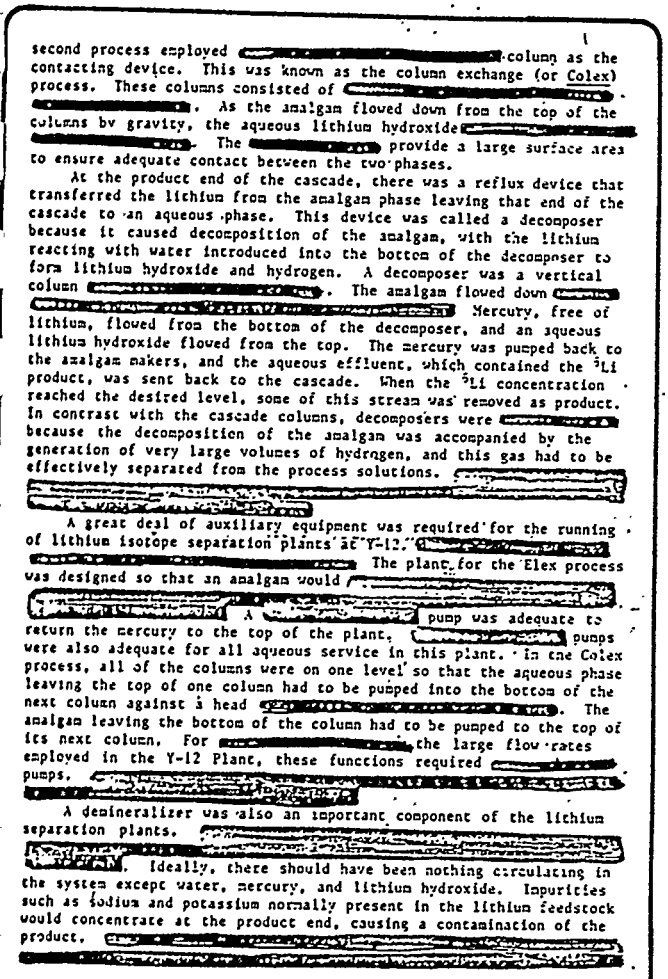
David Morris, city finan director, said he was impress by his first look at the situatio and now says he is interested the whole process.

"I'd like to go through t whole process," Morris sa "Now I have a good idea wh comes out of the end of the pi Now I'd like to see the other en

"I'm impressed with Joe Grone and the whole attitu there," Morris continued. didn't expect a whole lot — the attitude meant more to m really appreciate the attitude

The Oak Ridger

35TH YEAR—NO. 239—482-1021 OAK RIDGE, TENNESSEE, TUESDAY, DECEMBER 20, 1983



second process employed [redacted] column as the contacting device. This was known as the column exchange (or Colex) process. These columns consisted of [redacted]. As the amalgam flowed down from the top of the columns by gravity, the aqueous lithium hydroxide [redacted]. The [redacted] provide a large surface area to ensure adequate contact between the two phases.

At the product end of the cascade, there was a reflux device that transferred the lithium from the amalgam phase leaving that end of the cascade to an aqueous phase. This device was called a decomposer because it caused decomposition of the amalgam, with the lithium reacting with water introduced into the bottom of the decomposer to form lithium hydroxide and hydrogen. A decomposer was a vertical column [redacted]. The amalgam flowed down [redacted] Mercury, free of lithium, flowed from the bottom of the decomposer, and an aqueous lithium hydroxide flowed from the top. The mercury was pumped back to the amalgam makers, and the aqueous effluent, which contained the ^{6}Li product, was sent back to the cascade. When the ^{6}Li concentration reached the desired level, some of this stream was removed as product. In contrast with the cascade columns, decomposers were [redacted] because the decomposition of the amalgam was accompanied by the generation of very large volumes of hydrogen, and this gas had to be effectively separated from the process solutions. [redacted]

A great deal of auxiliary equipment was required for the running of lithium isotope separation plants at Y-12. [redacted] The plant for the Elex process was designed so that an amalgam would [redacted] A [redacted] pump was adequate to return the mercury to the top of the plant. [redacted] pumps were also adequate for all aqueous service in this plant. In the Colex process, all of the columns were on one level so that the aqueous phase leaving the top of one column had to be pumped into the bottom of the next column against a head [redacted]. The amalgam leaving the bottom of the column had to be pumped to the top of its next column. For [redacted] the large flow rates employed in the Y-12 Plant, these functions required [redacted] pumps. [redacted]

A demineralizer was also an important component of the lithium separation plants. [redacted] Ideally, there should have been nothing circulating in the system except water, mercury, and lithium hydroxide. Impurities such as sodium and potassium normally present in the lithium feedstock would concentrate at the product end, causing a contamination of the product. [redacted]

A page from the new report shows the deletion of classified material.

Mercury: Just 2 million

By CATHERINE FOSTER

A new report, "Mercury at Y-12," sheds few new details on mercury contamination in Oak Ridge, but suggests that earlier Department of Energy estimates of the amount of mercury not accounted for are too high by 400,000 pounds.

The actual amount of mercury lost or unaccounted for, according to the report, is about two million pounds, and some of it is apparently trapped in piping and foundations underneath the buildings used for the mercury separation process.

The report was completed in August by Union Carbide but declassified only Monday by the Department of Energy. The declassified copy of the report is riddled with deletions, not only of material in the body of the report, but also photographs and listings in both the index and the list of references at the end.

The 416-page report, which follows DOE's revelation back in May that 2.4 million pounds of mercury cannot be accounted for from Y-12 operations during the 1950s and 1960s, wa ed by a 24-member task

According to the re ficials did not become c about the unaccounted cury until 1970, when it known for the first tim organic mercury could verted, over time, to p methylmercury. "M releases were prima economic, not an enviro concern, since merc thought to be rel harmless and nontoxic

(Continued on Page 7

Council tours problems

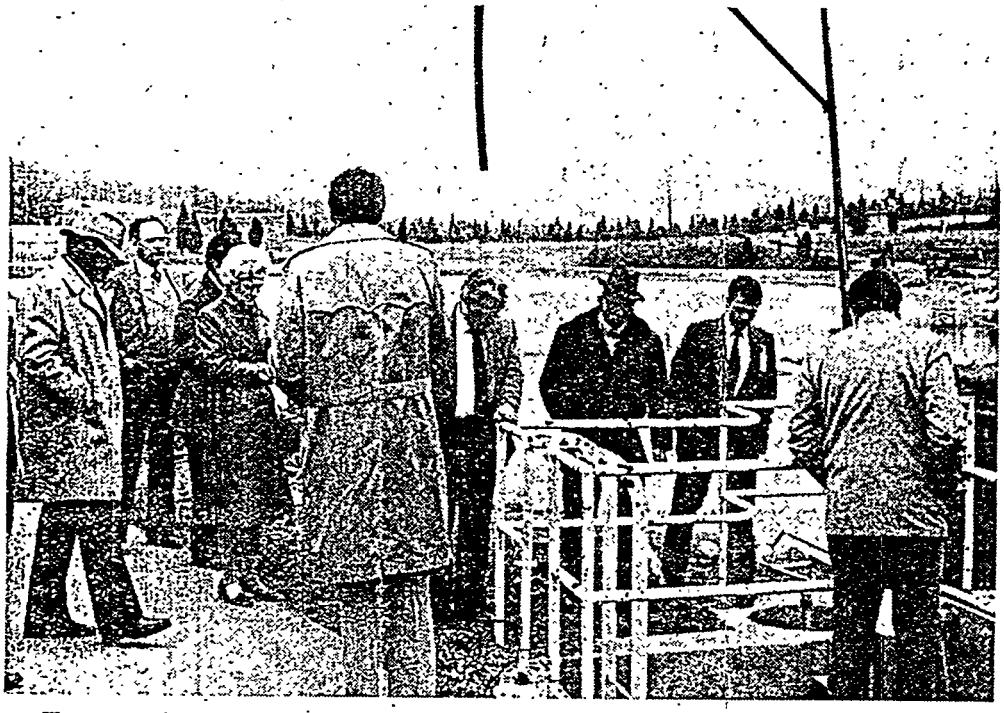
By RICHARD MERRITT

After hearing and talking about it for more than a year, city officials finally saw firsthand some of the environmental problems at the three federal facilities.

An all-day tour Monday, which was arranged by the Department of Energy, inclued practically the whole City Council, and many members of the Oak Ridge Environmental Quality Kaspar, DOE assistant manager for safety and environment, organized the event, and Oak Ridge Operations manager Joe La Grone attended the early phases of the tour. Also present were the upper echelon of city staff.

The tour was scheduled after the first December Council meeting, when Kaspar, after giving a rundown on the environmental situation, invited specific sites, such as mentioned New Hop White Oak Lake, and ponds. The types of was and explained were low-level radioactive coal pile runoff and oil seepage.

The extensive tour lasted about eight covered various sites at Plant, Oak Ridge N Laboratory, and Oak



The group of city officials at the New Hope Pond at the Y-12 Plant Monday afternoon. In the background can be seen construction work on the bypass stream that will allow DOE to drain the pond so the sediments can be removed.

where the top Union Carbide Nuclear Division officials at each briefed the group.

"There are two ways we can look at these problems," La Grone said in his introduction, "negatively or positively. We are looking at it positively, and He added that he would like to make similar tours in the future.

"The state of Tennessee has been looking just at the Y-12 Plant, ORNL, and the gaseous diffusion plant as single entities," La Grone continued. "But as I look at the environ- we do our job right, we will manage it all as a package."

Councilman Larry Dickens, who said that "it is my perception that this (environmental problems) has been blown way out of proportion by the news media," said that the tour made

2.4 million pounds of

By CATHERINE FOSTER

More than two million pounds of mercury has been lost during the past 30 years into the ground and groundwater around the Y-12 Plant site, Department of Energy officials have revealed.

The report on the mercury, prepared by Union Carbide Nuclear Division in 1977, and considered classified by DOE until Tuesday afternoon, estimates that 2.4 million pounds of mercury was released, and that some mercury may continue to be released.

Following release of the report, Sen. Jim Sasser and Rep. Marilyn Lloyd sent a telegram to William Ruckleshaus, who is being sworn in today as head of the Environmental Protection Agency, asking EPA to investigate.

"We believe that the improper disposal of a hazardous chemical in this quantity poses very serious questions about the public health and safety," the telegram says.

The House Subcommittee on Investigations and Oversight of the Science and Technology Committee will also be holding hearings on the mercury release, according to subcommittee chairman Albert Gore Jr., D-Tenn.

According to the DOE report, which is riddled with sections that are deleted from the public copies because the sections are still classified, most of the material unaccounted for is believed trapped in the groundrock on the plant site. The remainder traveled into the creek or was airborne, although the 1977 report says there "is no evidence that these ground losses had or have reached Poplar Creek." However, there is now evidence that it has indeed reached the east fork of the creek, which was closed to fishing in November of last year when mercury was found in fish.

The affected area runs from the Y-12 site through Oak Ridge, behind Dean Stallings Ford and the K-Mart Plaza, and near the Jefferson tennis courts.

Rep. Lloyd called the situation "nothing short of alarming," and said the report made her "concerned about the Department of Energy's overall policy with regard to hazardous materials."

She also was disturbed that DOE would have held the report for seven years before releasing it. "I think we have an obligation to look into this situation to determine if there are any other 'unaccounted-for' materials we should know about."

DOE is conducting a number of studies because of the increasing mercury problem, but DOE spokesman Wayne Range, citing the studies, emphasizes that DOE does not believe any emergency situation exists.

DOE has signed a $50,000 contract with Battelle Memorial Institute of Columbus, Ohio, for a study on mercury's "pathway to man" from the releases, according to Range. The study, to be completed next week, is to examine how any of the mercury might be ingested, including studies of fish and possible uptake through vegetables and plants.

Too, Thomas Clarkson, an expert in mercury contamination from the University of Rochester School of Medicine, was in Oak Ridge Monday to consult with DOE officials and examine the creek, Range said. "He said there is no reason for immediate concern from the

Map shows the flow
It leaves the Y-12 Pl

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Mercury in extract produced[3]
Book inventory 9201-4 December 31, 1976
Estimated inventory error[4]
Estimated hold up in 9201-4 salvage[5]
Estimated hold up in 9201-4 equipment[6]
Total estimated 9201-4 inventory
Measured loss 9201-5 March, 1966
Creek losses through 1972[7] (soluble)
Creek losses through 1964[8] (entrained, estimated)
Mercury in sludge removed from New Hope Pond[9]
Airborne losses 1955 through 1963[10]
Total mercury accounted for
Total mercury unaccounted for

49,855
235,000
235,000
7,200
30,000
Deleted
1,880,699

[1]Y-12 bottling procedure calls for filling bottles to 76 pounds -0+2 ounces

[2]All equipment removed from 9201-5 had some mercury contamination

[3]Creek losses 1955 to present

[4]No analysis available on entrained material. Estimated to be equal to soluble mercury

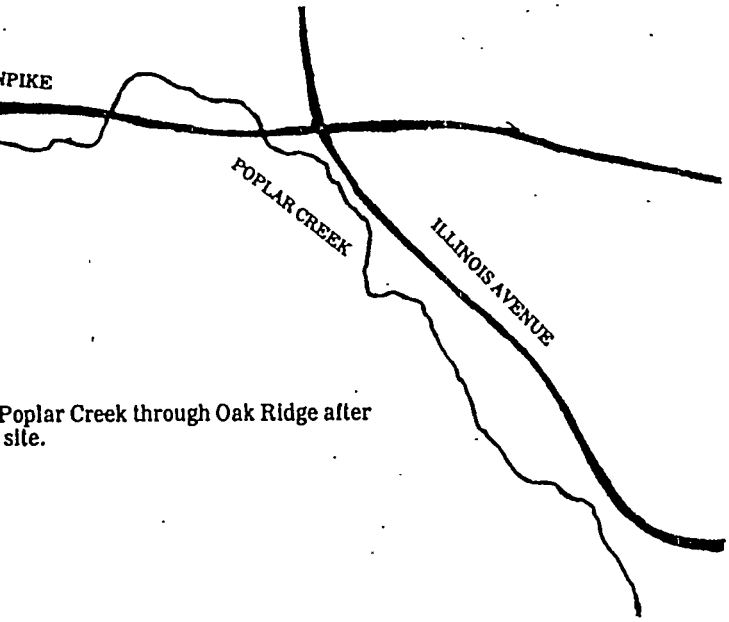
[5]Average analysis of sludge removed from New Hope Pond

[6]Letter J. C. Little to distribution dated March 4, 1955

Deleted

One page from the report shows the deletions of classified material.

mercury lost from Y-12



Poplar Creek through Oak Ridge after
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Range said that, because of some concern about children who play around the creek, DOE will this week do a "quick" study involving feeding the sediment to some rats. Oak Ridge Research Institute will be asked to do that study, Range said.

And the earth under and around buildings housing the mercury at Y-12 will be examined, Range added. "We believe that the mercury is contained in the geologic formations, and we're going to reassure ourselves that this is the case," he said.

The mercury was used in a large-scale lithium separation process at Y-12 between 1950 and 1963; the process has not been used since. There have been four major spills of the mercury: In summer 1955, when up to 45,000 pounds was spilled; in December 1955, when up to 170,000 pounds spilled when an expansion joint ruptured; in summer 1956, when up to 180,000 pounds was lost in various spills during transfer of the mercury between stations; and in March 1966, the largest single spill, when 100,000 pounds was lost through leaky storage tanks.

In all cases, the visible mercury was recovered. The New Hope settling ponds, built in 1963, caught the mercury from the 1966 spill, DOE officials say. But the mercury from the earlier spills apparently found its way into the creek over the years.

DOE officials still insist there is no risk to the public from the missing mercury, despite the fact that East Fork Poplar Creek has been closed to fishing because of the presence of mercury in the fish.

"We do not believe that the water and the sediment pose any problems to the people in the area," Range said.

But Michael Bruner, assistant commissioner of the Tennessee Public Health Department, calling it the largest known mercury contamination in the Southeast, said the presence of mercury here is "a serious environmental problem, and it needs immediate, concentrated attention."

Some mercury remains at the plant, stored in 76-pound metal flasks.

Range said he doesn't know how much mercury has been lost from the plant since the report was prepared in 1977. "I don't know of any data that's been collected since that time," he said.

The report estimated that between 1950 and 1977, almost 1.9 million pounds of mercury was lost during accidental spills at the plant.

Almost all of that mercury is thought to have settled in underground rock formations below the plant, the report said.

Another 475,000 pounds of mercury was spilled into East Fork Poplar Creek, which empties in-

(Continued on Page 7 No. 1)

... other countries core.

• Number 1

Mercury

— From Page One

to Clinch River about 20 miles from the plant.

Last November, the state health department posted signs along the creek warning of the possible danger of eating fish caught there.

"If there is a concern it would be in connection with fish," Range said.

Mercury contamination has been found in sediment and fish in the Clinch River up to 35 miles away from the plant, said William R. Bibb, head of energy programs for DOE.

Range said officials believe a small amount of the previously spilled mercury continues to flow into the creek — "like two ounces a day in some six-to-eight million gallons of water," he said.

The report says that the soil from the creek could be excavated, destroying the creek and removing "less than 4000 pounds of mercury." But Range said today that DOE officials "don't put a lot of credence in that number."

About 30,000 pounds of mercury was lost into the atmosphere, the report said.

"The airborne losses were reduced to practically zero in 1958," the report said. "The creek losses have been less than the minimum detectable limit since 1963. There have not been any earth losses reported since operations were terminated."

DOE, the Environmental Protection Agency and the state are talking about setting up a cooperative study of pollution in the creek. Range said no timetable for that study has been agreed upon, but it is part of the tentative memorandum of understanding between the three agencies. "We intend to move on that joint study," Range said. He added that all data that is gathered by DOE is being passed on to EPA, the state health department, and officials from Oak Ridge and Anderson and Roane Counties.

Mercury poisoning causes irreversible damage to the nervous system and causes chromosomal breakages in fetuses. Symptoms of the poisoning include neurological changes such as lapses of coordination, balance and sensory perception, followed by loss of peripheral vision, slurring of speech and loss of memory.

USERDA -5- June 9, 1977

INVENTORY BALANCE

Total mercury received in Y-12

Bottled prior to 1977

Estimate of average when filling bottles[1]

Estimate of material removed in 9201-5 stripping[2]

Recovered by Gallery Battery Company

Hearings on Y-12 contamination set

BY KEN RENNER
Journal Capitol Reporter

Two congressional subcommittees will hold joint July 6 hearings on environmental contamination from the Department of Energy's Y-12 plant in Oak Ridge, but it may be November before the extent of the pollution problems are revealed.

The hearing date was set Wednesday, just a day after DOE met its first reporting deadline to state and federal environmental officials on waste discharges into East Fork Poplar Creek.

Howard Zeller, assistant regional administrator of the Environmental Protection Agency's Atlanta office, said the report appears to comply with the recently negotiated agreement between DOE, EPA and the state in describing what kinds of waste are being dumped into the creek and where the discharge points are located.

Zeller said the three-inch stack of documents includes maps, flow charts and general descriptions of the types of waste being generated by the plant, which produces precision components for nuclear weapons.

But detailed chemical analyses of what chemical and radioactive contaminants are present in East Fork waters will not come until DOE makes another report to environmental officials on Nov. 15.

A variety of other reporting dates have been set for DOE discharges into New Hope Pond, Bear Creek and other potential sources of contamination for water draining from the federal facility.

Zeller said the information given to EPA will be submitted to the congressional panels, but that specific information on amounts of pollutants being dumped into tributaries of the Clinch River will probably not be available when the subcommittees convene.

"From the data we've previously received, I expect that the discharges as presently constituted are not going to be acceptable to us. A number of them will be stopped completely. On a number of others, we may require improvements in treatment or other modifications," Zeller said.

"I don't think that surprises us," responded Wayne Range, DOE's Oak Ridge spokesman.

The congressional probe will be spearheaded by subcommittees of the House Science and Technology Committee chaired by Reps. Albert Gore Jr. and Marilyn Lloyd, both Tennessee Democrats.

Gore said Wednesday the purpose of the hearings is to "assess the extent of the problems on contamination from mercury and other pollutants at Y-12."

In a 1977 report declassified last month, DOE admitted it had lost 2.4 million pounds of toxic methylmercury through accidental leaks and other discharges into the land, air and water at the facility from 1950 to 1977.

Other reports to state and federal regulators have detailed continuing discharges of radioactive contaminants, solvents, cancer-causing PCBs and other pollutants from the DOE reservation from the time it opened in the 1940s.

The jury is still out on what harm, if any, has been caused to

Board to ask Oak Ridge to curb development

BY TERRY MCWILLIAMS
Journal State Reporter

OAK RIDGE — An environmental board will urge Oak Ridge officials to curb future development along East Fork Poplar Creek in order to safeguard the city from additional mercury contamination problems.

Oak Ridge's Environmental Quality Advisory Board has been studying the mercury issue since the Department of Energy released a secret document showing that 2.4 million pounds of mercury leaked from the Y-12 nuclear weapons plant.

In a letter being prepared, the environmental board will urge withholding development in the flood zone until safety risk from disrupting the soil can be determined.

Already, one commercial developer attempting to relocate a portion of the stream has been forced to spend more money than he originally anticipated for limiting further spread of the mercury contamination.

Several members of the board expressed concern that without knowing the risks, some development might stir up mercury-laden sediment into the air as dust, and would be inhaled.

A member of the city's planning commission said the board didn't need to produce such a statement, but that prospective property buyers and builders should be told of the mercury problem.

Energy Department officials declined an invitation to appear before the environmental board to discuss the pollution issue.

pie on the outside looking in.

OR agency

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By RANDELL BECK
and TERRY McWILLIAMS
Journal Reporters

01/16/83

OAK RIDGE — Seven years before the state closed East Fork Poplar Creek, government scientists knew a possible hazard from toxic metals existed and recommended a fishing ban.

In a 1975 analysis of environmental problems at the Oak Ridge nuclear reservation, scientists found high levels of mercury and other heavy metals in sediment and fish in Poplar Creek and in part of the Clinch River. Based on the findings, they warned that eating the contaminated fish could transfer "unsafe" levels of the toxic substance to humans.

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burial grounds along Bear Creek near the weapons plant. The study said the radioactive elements might contaminate underground water and show up miles away in springs.

The study also criticized methods of burying other chemical waste. Toxic metals had seeped from burial grounds near the weapons plant, the study said, affecting plant and animal life in the area. Oil seeped from abandoned burial pits into holding ponds which, in turn, leaked into Bear Creek.

Two chemicals, hydrogen fluoride and fluorine, "are predicted to be high enough to cause damage to plant and animal communities" of a 9,000-acre area near the weapons plant. Some of that contamination, the study warned, may fall into the residential areas of Scarboro and Woodland. Those same elements may make land outside the government's reservation unsuitable for farming, according to the study.

The study blamed much of the Oak Ridge contamination on past operations, saying there had been recent efforts to clean some streams. But by 1975, the study said, much of the damage had been done. High levels of toxic chemica "will persist for many years."

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The 1975 study covered all three government plants in Oak Ridge: the Y-12 weapons plant; the gaseous diffusion plant; and Oak Ridge National Laboratory. The scientists also studied the effects of waste disposal methods on the area near Oak Ridge.

Among the conclusions of the report, which was released to The Knoxville Journal:

■ Stream concentrations of heavy metals — aluminum, cadmium, chromium, copper, fluoride, lead, mercury, manganese, uranium, zinc and nitrates — had severely affected Oak Ridge creek life by 1975. For example, scientists found mercury levels of 100 parts per million — 30 times normal concentrations — in sediment of Poplar Creek near Clinch River.

■ Seeping from trenches, where tons of waste has been buried since the 1940s, large amounts of radioactive elements polluted creeks and the Clinch River. Continuing leaks of radioactive Tritium from burial grounds near the laboratory cannot be stopped, the scientists said.

■ Other methods of disposing of chemical wastes — through holding ponds and trenches along Bear Creek — pollute area streams, affecting animals and plants in the area. A "new system" of dumping oil onto nearby fields, the study concluded, "is killing vegetation wherever it is deposited."

Chemical discharges have long affected the quality of creek life around Oak Ridge. Not until recently, however, did the energy department admit that 2.5 million pounds of mercury were spilled from the weapons plant between the 1950s and 1966.

Through the years, in reports issued annually to Congress and the public, DOE has maintained there was no significant pollution at Oak Ridge. But at the same time, the energy department kept internal reports that documented severe contamination of water and sediment.

The 1975 report, however, indicates that the energy department knew then that its facilities were killing plant and animal life in Oak Ridge. Levels of manganese in creek water, for example, were 130 times the drinking water standard

See Mercury, Page A10

Mercury

From Page A1

and "probably contribute to scarce aquatic life in Bear Creek. . ," the study found.

In a 1974 experiment, fish were placed in Bear Creek near the weapons plant. All the fish died within 24 hours.

Similarly, concentrations of mercury, uranium and zinc — all of which can kill fish and plants — often were higher than drinking water standards. The study found mercury levels of 100 ppm near the mouth of the Clinch River. Sport and commercial fishing, the study concluded, "should be prohibited in this area because of mercury bioaccumulation."

Under the bioaccumulation process, mercury levels are magnified as the chemical moves from creek sediment to fish and, finally, to animals that eat the fish. In Poplar Creek, the study said, high levels of cadmium, chromium, copper and lead also were magnified in marine life.

Despite the 1975 warning, DOE never prohibited fishing in the streams. Last fall the Tennessee Department of Health and Environment banned fishing in East Fork Poplar Creek. The effects of mercury contamination can continue for as long as 100 years after the chemical is discharged into the water, the 1975 study warned.

In addition to toxic substances, radioactivity also has contaminated area streams, the study said. Large quantities of Ruthenium and Tritium have seeped from burial pits directly into the Clinch River, the study said.

Tritium, according to the study, came from burial pits near Oak Ridge National Laboratory. "From a practical standpoint," the study said, "little can be done to inhibit or control these releases."

The radioactive elements Thor-

JOURNAL
CITY/STATE
Friday, August 19, 1983

Mercury count soars dow

By RANDELL BECK
Journal Energy Reporter

More than 100 miles of the Tennessee River bottom, between Oak Ridge and Chattanooga, contain up to 10 times the normal mercury levels of areas upstream from Oak Ridge, a Tennessee Valley Authority report says.

About 70 percent of the river sediment below Oak Ridge revealed levels of mercury ranging between 1.01 and 3.16 parts per million (ppm), the report shows. The average mercury concentration in the river above Oak Ridge — the site of three plants owned by the Department of Energy — is .27 ppm.

The report, compiled from DOE figures and given Thursday to a task force investigating Oak Ridge contamination, recommends additional sediment tests to determine the extent of the pollution. More than 260,000 persons get drinking water from the Tennessee and Clinch rivers below Oak Ridge.

TVA's report also recommended more tests for:

- East Fork Poplar Creek, which receives toxic chemical discharges from the weapons parts plant. Continued high levels of mercury in the creek's fish and sediment should be lowered.
- Poplar Creek and the Clinch River below Oak Ridge. The report said the mercury levels are still high for fish and sediment in those areas, and that concentrations of possibly toxic chromium and nickel should be measured.
- Bear Creek and White Oak Creek, which in the past have received large amounts of hazardous chemicals from the weapons plant and Oak Ridge National Laboratory. In addition, radioactive leaks from nearby waste trenches may be polluting those waters.

Despite higher-than-normal concentrations o activity, there is little danger to public health.

John Higgins, an engineer with the TVA water quality branch, warned the task force that levels of the radioactive elements cesium and strontium have increased in Oak Ridge-area streams since 1978. Discharges of those materials have declined, however, since the 1950s, he said.

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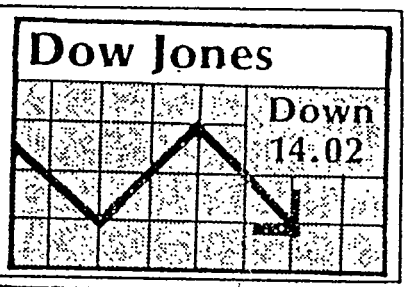
Business D4-5
NYSE/AMEX.....D4
Markets at a glanceD4
Commodities.....D5
Briefcase D5



nriver from OR

els in the stream. Therefore, TVA suggests in the report, it may be wise to also test for accurate levels of uranium.

TVA's Higgins said it is unclear why the Tennessee River more than 100 miles from Oak Ridge contains higher mercury levels than the Clinch River. But one state official said the reason may be that river currents carried the heavy chemicals, discharged into creeks near Oak Ridge, and were carried several miles downstream until they settled into river sediment.

For many years, chemicals were dumped directly into creeks because Oak Ridge officials believed their toxic effect would be diluted as they merged with the Clinch and Tennessee rivers. The theory — "Dilution is the solution to pollution," one water expert said sarcastically — has been disputed in recent years.

The rest of Thursday's lengthy task force meeting dealt with organizing subcommittees that will test radioactive and toxic levels in water, sediment, fish and soil. The task force was created in May after the energy department released a report detailing the loss of 2.5 million pounds of mercury at the weapons plant.

Attending the meeting were representatives from DOE, Tennessee Department of Health and Environment, Environmental Protection Agency, U.S. Geological Survey and TVA.

Issues

Does waste from Oak Ridge facilities

OAK RIDGE — Most people here don't consider the discharge of mercury and other chemicals from nuclear facilities to be a serious health risk for them, an unscientific opinion poll conducted on the street indicated.

Of 11 people surveyed by a Knoxville Journal reporter, seven said they feel chemicals from the plant are absolutely no threat to the community. The other four individuals said they thought the chemicals were somewhat or very dangerous.

All indicated that if the chemicals were determined to be hazardous to the health of the people in the community, the U.S. Department of Energy should be the agency to clean up the pollution.

People were asked the question, "Do you feel the discharge of radioactive chemicals and other pollutants from the Oak Ridge nuclear facilities presents a health risk to Oak Ridge residents? If so, who should be responsible for the cleanup?"

Here are the comments:

I live just a few streets away from Poplar Creek. I went ahead and planted my garden this year, so I'm not too much afraid of it.

Yvonne Mason, 47, 301 East Faunce Lane

I live around a lake, and it concerns me somewhat. I feel it's a great health risk because it has been proven to be dangerous.

Mike Dodson, 18, Clinton

If they create it they should clean it up. They should be responsible for their actions

Iris Kunkel, 33, 124 Indian Lane.

What d

Extra wants you
residents of Wes
Just send your c

present a health risk?

you think?

opinion on this week's issue and other issues of concern to
Knoxville, West Knox County, Oak Ridge and Anderson County.
mments to Extra Issues/P.O. Box 911/Knoxville, TN. 37901.

right now and we don't know it.'

ful, Trammell said, Wilson then could file suit in federal court.

Wilson, who said he first felt symptoms of mercury poisoning 10 years ago, also believes many former Y-12 workers have died not knowing they had been affected by mercury.

"I just know there have been many men who had the same thing I have," Wilson said. "It's terrible, because now the (Department of Energy) won't admit it. You wonder how many are alive but sick from the mercury."

Even Jack Case, the former Y-12 director, said he would not be surprised to learn that workers have mercury poisoning today. Protection of workers was not comprehensive in the 1950s and 1960s, he said.

"If somebody got hurt in the (mercury) process. . .it wasn't on purpose. It may have been done from ignorance. Then you ask, 'Why wasn't it (protection of workers) better.' Well, my God, how could it have been better if you didn't know how to do it better?

"Coal miners still get black lung," Case said.

Ironically, Case's wife is preparing to sue the Department of Energy for the death of her former husband. Wayne Wallace worked in the Alpha buildings before he developed a kidney disease. Although Wallace was given an artificial kidney, he later died. Mrs. Case blames his death on exposure to mercury.

Mrs. Case's lawsuit, many in Oak Ridge say, won't be the only one accusing the government of endangering the lives of its employees.

Recent revelations about the danger of mercury, many officials contend, could open a Pandora's box of health problems among former weapons plant workers.

Most of the uneasiness and worry among former workers,

> There's a weapons plant guard who loves to fish. Sometimes, "just for kicks," he goes fishing in New Hope Pond, polluted one-acre pond on the east end of the weapons plant. The pond is supposed to catch toxic chemicals from the plant. "He catches fish that are all deformed. It's the damnedest thing. And scary."

"He catches fish that are all deformed," Robinson said, first laughing, then growing solemn. "It's the damnedest thing. And scary." Some of the fish, he said, have eyes in the wrong places.

"He throws them back."

And the pond empties into East Fork Poplar Creek. The streams empty into the Clinch River, from which Melton Hill Lake is formed.

At that Tennessee Valley Authority lake 10 miles south of Oak Ridge, state officials say fishermen sometimes catch deformed fish. Some fish, those officials said, have large tumors on their backs.

Those reports worry state officials more than the continuing chemical discharges.

Eating contaminated fish is the fastest way people can become exposed to radioactive and toxic substances, the state health department says. Despite high levels of mercury, uranium and thorium in fish near Oak Ridge, however, government officials still say there is no immediate danger to the public.

Trying to avoid a panic, the de-

unknown.

"A lot of workers," said Robinson, "don't know if there is something wrong with them that could show up in a few years — after they've retired. If there is anything (workers) ought to know, they should be told as soon as possible."

But mercury is not the only health problem at Oak Ridge. Some workers, labor union officials say, now suffer from illnesses related to breathing asbestos and beryllium — both major contaminants of building air.

■ ■ ■

There are other signs, perhaps even more dangerous. Not just for workers, but for the public.

At the weapons plant, for example, there is a guard who loves to fish. He carries his fishing gear everywhere. There are times — "just for kicks," said Robinson — when the guard goes fishing in New Hope Pond, the polluted one-acre pond on the east end of the weapons plant. The pond is supposed to catch toxic chemicals from the plant.

test anyone's garden for mercury contamination. Officials began testing Oak Ridge creeks and lakes for the presence of 126 other toxic and hazardous chemicals. The Department of Energy, led by manager Joe LaGrone, has gone out of its way to assure area residents that Oak Ridge is a safe place to live.

Someone would have to eat several pounds of contaminated fish from Oak Ridge streams each day, DOE often says, to get a lethal dose of toxic chemicals. But that argument doesn't wash with state officials who, trying to keep contaminated fish off Oak Ridge dinner tables, banned fishing in East Fork Poplar Creek last year.

"Those types of arguments are very misleading," said David McKinney of the state Department of Health and Environment. "The point is, if you are going fishing and you are going to eat those fish, you have a right to know if they're substantially contaminated with things that are hazardous and toxic and carcinogenic."

'He (Wing) told us there was about 5
spilled. That figure, it was discovered

Wing: Culprit, victi

"As you know, there really isn't much pollution in Oak Ridge." — *Jerry Wing, April 18, 1980.*

By RANDELL BECK
Journal Reporter

The words of that letter have returned to haunt Jerry Wing — culprit, victim, symbol of the past.

He is a culprit because, as chief of the government's environmental branch, Wing led Oak Ridge efforts to fend off federal agencies seeking to limit pollution at the three plants. And, until recently, few outside the Department of Energy knew how serious the Oak Ridge pollution was.

Wing is a victim because he, more than anyone else at the Department of Energy, has been publicly ridiculed for poor environmental practices. Political winds change. Wing's bosses in Washington, D.C., no longer resist outside attempts to clean up Oak Ridge. And Wing has been pushed aside.

He is a symbol of the Cold War philosophy the government once nurtured among its top officials. Despite being moved from his old job, he refuses to acknowledge there has been serious pollution at Oak Ridge.

The environmental branch at Oak Ridge was created in 1970 to protect area water, air and land. But Wing, with an uncanny ability to seem belligerent one moment and affectionate the next, spent much of his time protecting the energy department from regulation.

He did that in 1975, for example.

That was when Earl Leming, then East Tennessee director of water quality, heard rumors that large amounts of mercury had once spilled at one of the Oak Ridge plants. He called Wing.

"He told us there was about 50,000 pounds (of mercury) that had been spilled," Leming recalls. That figure, Leming discovered years later, was off by more than 2 million pounds.

State officials did not learn the ext spills until May 1983, when the governi detailed report. Wing, state officials helped stall the release of the report.

In 1974, before his conversation wit knew the sediment of East Fork Pop tained unusually high levels of merc about that contamination in an inter Wing, smiling at the mention of mercu Oak Ridge, still says it is not a serious

Talk of mercury and other chemical maintains calmly, is much ado about n long after Oak Ridge pollution went Wing suddenly lost the job he'd held fo years. He was transferred to the dead-e er Breeder Reactor. Sources say the go the transfer as a symbol of its new phi its new concern for the environment.

At July's congressional hearings o spills, Wing became a scapegoat. He wa cized before other government officials

"I really feel bad for Jerry Wing," friend A.K. Bissell, former mayor of O pretty obvious what they've done to wanted now. I really hate it."

Today, Wing is a bitter man. He sa treated unfairly. But many state offi sure.

One former water inspector, for exa visit to the weapons plant in 1979. He Wing that the state planned to tighten i Oak Ridge pollution. He mentioned sev limit chemical discharges. Wing let the i

A few hours later, over lunch at th cafeteria, Wing suddenly looked up, fixi the inspector. Wing, the inspector no "It's going to be a cold day in hell befor those (projects)."

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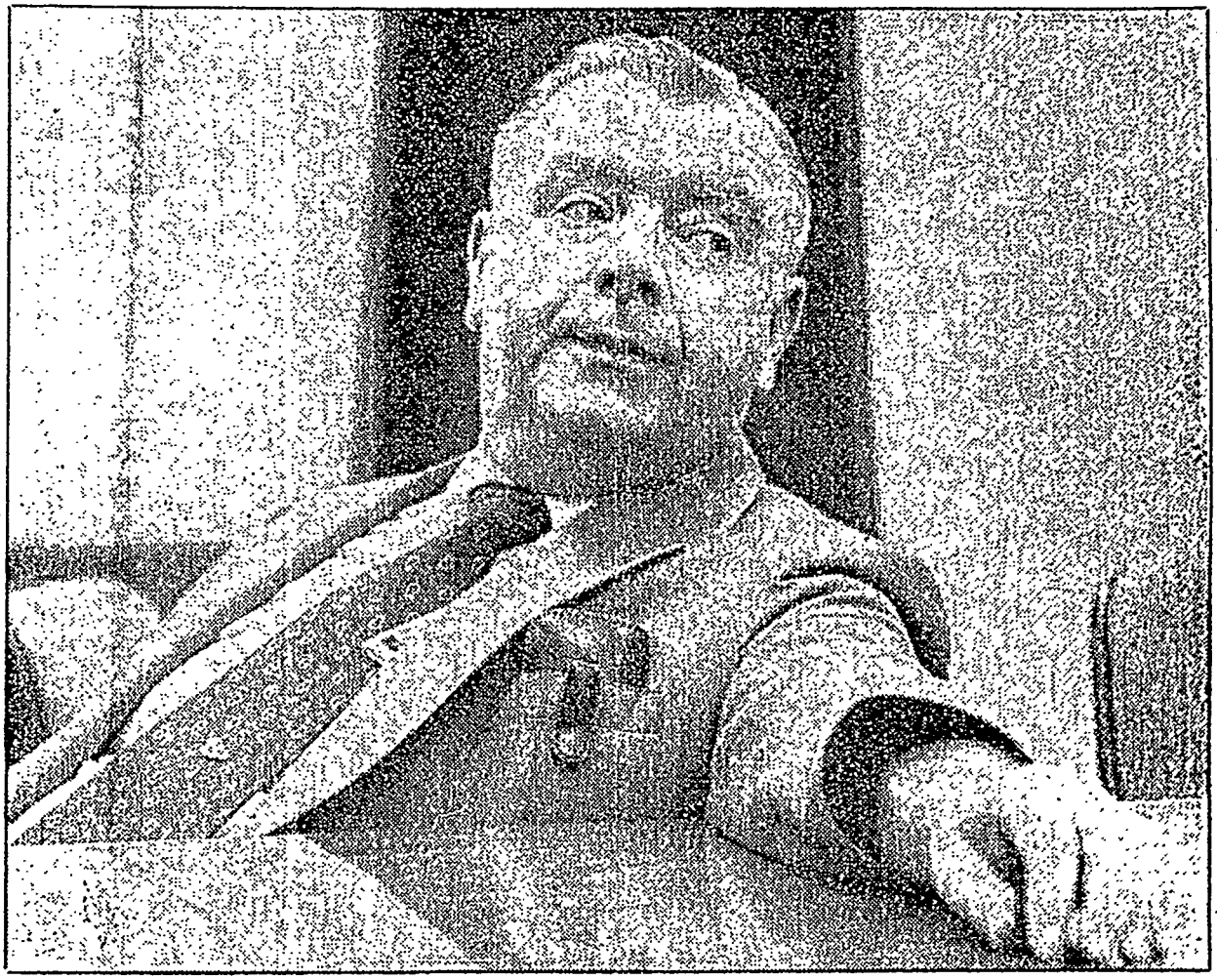

The Knoxville Journal/SKIP O'ROURKE

Last May, Jerry Wing lost the job he'd held for 10 years, becoming a scapegoat for the federal government.

'...the creek area downstream is best described as a mass of white, tan and yellow gelatinous goo.'

Chemicals in ponds contaminate water

From Page A1

that building nuclear weapons is a far more important task.

■ Encouraged a Cold War mentality among its top officials who, even now, resist the state's efforts to reduce chemical and radioactive discharges and clean up Oak Ridge.

■ ■ ■

Put a few drops of poison in your bath or well. It will dilute. Do that for 30, 40 years. It will be all right. Dilution will take care of almost any contamination.

Dilution, the old Atomic Energy Commission believed, was the solution to pollution at Oak Ridge. That was what the old Energy, Research and Development Administration thought. And documents show the Department of Energy, which replaced those agencies at Oak Ridge, still bases many environmental programs on that theory.

There is only one difference. In Oak Ridge, the government did not merely dump its poisons — the lethal chemicals used for top-secret purposes — in one well or bathtub. Instead, wastes went into the streams. The streams empty into rivers.

And below Oak Ridge, more than a quarter of a million people get drinking water from those rivers. Spring City, Dayton, Chattanooga. There are many others.

"Anybody with half a brain knows you don't just dump waste like that in the streams and expect nothing to happen," said Frank L. oratory. At the weapons plant, they built a pond on the east end of the plant to catch the pollutants. They built it, remembers Jack Case, plant director from 1969 to 1982, because the chemicals were killing stream life.

"They had been putting more and more stuff in the creek," Case said of the early 1950s. "When you do that, you look for fish and if you see you are not making it, you do something different."

The two-acre pond was named New Hope Pond, he said, because "there was a new hope that everything would come out all right."

It didn't.

Massive amounts of mercury, spilled from the plant through the 1950s and 1960s, got past the pond and into the creek. So did other toxic pollutants. Twenty-five years later, state water inspectors discovered the creek could not support fish and plant life near the plant. Even Bear Creek, a small stream south of the plant, but less polluted than East Fork, had died.

Today Larry Reynolds, a former state water inspector, still remembers his first glimpse of Bear Creek. It was 1978.

The creek, he remembers, "didn't have the type of aquatic life that you would normally expect in a small stream like that. It was nice clear water. It looked great. But it didn't have little things like crawdads and minnows and insects."

The same thing happened at the laboratory.

There, they built a dam on White

forms on top. The stinging stench lingers in your throat. Chemicals still are dumped into the ponds. You cannot drink from the groundwater 10 feet below the weapons plant. It is deadly.

So is the groundwater below what plant officials call the oil farm. That is a large plot of ground a mile

The poisons

Following is list of common toxic and hazardous pollutants discharged at the Oak Ridge government plants and often found at levels higher than acceptable. The drinking water standard, in most cases, is stricter than the one for stream life.

Cadmium
Highly toxic metal used to coat metals. Inhalation of cadmium dust is especially dangerous, carcinogenic. Water limit for protection of fish and aquatic life is .000025 parts per million.

Chromium
Brittle gray substance used in metal plating. It is a carcinogen most dangerous when inhaled. .05 parts per million limit for fish and aquatic life in streams.

Mercury
Very heavy liquid metal once used in vast quantities in a chemical process at Oak Ridge. Fumes are highly toxic, affects body's organs, nervous system. Limit for fish and aquatic life is .00005 parts per million.

Beryllium
Brittle metal used in nuclear reactors. It is highly toxic in dust form, carcinogenic. Often contaminates the air in Oak Ridge buildings. Limit for fish and aquatic life in streams is .0053 parts per million.

Polychlorinated Biphenyls (PCBs)
A chemical widely used as an insulator in oil. Causes cancer and is highly toxic. Standard for fish and aquatic life is .000014 parts per million.

Nitrates
A chemical frequently used in fertilizers, it can be toxic at some levels. There is no standard for streams, but the standard for drinking water is .00001 parts per million.

Trichloroethylene
Synthetic compound used as an ingredient in industrial degreasers and solvents. Toxic and could cause cancer. Limit for drinking water is .02 parts per million.

1 in a million...

What is one part per million?

■ 1 ounce of sand in three and a quarter tons of cement.
■ 1 inch in 16 miles.
■ 1 minute in 1.9 years.
■ 1 ounce in 7,530 gallons.
■ 1 square inch in 1/6 acre.
■ 1 pound in 500 tons.
■ 1 cent in $10,000.
■ 1 ounce of salt in 62,500 pounds of sugar.
■ 1/16 inch thickness in a pile one mile high.

expert.

Yet, it still happens in Oak Ridge.

The Y-12 weapons plant produces warheads for the MX, Pershing II, Trident and Minuteman missiles. It also discharges enough water every day to supply a typical Knoxville family for 150 years. And that water contains hundreds of chemicals — most of them dangerous, some of them deadly. That water is dumped from steel and concrete buildings into a quarter-mile-long, open sewer called the industrial ditch.

Its other name is East Fork Poplar Creek.

Uses of most chemicals are closely guarded secrets. But their effects on water, vegetation, fish and man are well known. There are chemicals that cause cancer: cadmium, chromium and trichloroethylene. There are chemicals that can cause a other illnesses: mercury, nitrates, lead, zinc, arsenic and barium.

The laboratory, where scientists test everything from lasers to genetics to the effects of the very chemicals they discharge, empties a wider array of waste into its industrial ditch, White Oak Creek. The narrow stream starts in the hills north of the sprawling lab, ducks under Bethel Valley Road and cuts through the lab complex.

In the waters of White Oak Creek, which empties two miles later into the Clinch River, are the same chemicals found at the weapons plant, plus high levels of copper, aluminum, ammonia and phenols. And there are other, secret wastes.

In the name of research, many state and federal officials now believe, the laboratory may be the biggest polluter in Oak Ridge.

There have been attempts in the past to stop chemicals from going farther than the Y-12 plant and lab-Lake. It was supposed to catch the poisons coming from the lab, heading for the Clinch River. It caught some. But the rest spilled over the dam, finally settling in the creek and river bottoms far downstream.

Today the lake and creek — on either side of the dam — have been posted against fishing, swimming and drinking. State officials did that. But the lab still contends the water is okay. On a recent tour, pointing proudly at White Oak Lake, lab spokesman Ed Aebischer said the water was safe to drink.

A visitor asked Aebischer to take a drink.

"Not right now," Aebischer replied without hesitation.

■ ■ ■

For 1971, the report was pretty strong.

Richard Nixon was still in office. America was making bombs rapidly. It was not popular, especially in East Tennessee, in Oak Ridge, to criticize pollution at the weapons plant. But that is exactly what the anonymous report did.

Something was leaking. It came from the four so-called S-3 ponds, where millions of gallons of deadly chemicals had literally eaten through one pond wall. The trail led to Bear Creek, a hundred feet away.

"The current physical condition of the creek area downstream from the ponds and Bear Creek," the report said, "is best described as a mass of white, tan and yellow gelatinous goo."

The square, one-acre ponds on the west side of the plant had long been an eyesore — even at the weapons plant. For years, scientists and engineers had complained. The ponds often changed colors — orange to bright green to black. It depended on the kind of chemicals dumped there.

Even today, the ponds still feature unnatural colors. A thick crud for many years, plant workers dumped tons of used oil contaminated with PCBs, a highly dangerous synthetic chemical.

The grass turned black and died. The earth is black, as if scorched by a great fire. The cancer-causing PCBs, measuring thousands of times higher than what is considered safe, soaked through to spoil the groundwater.

The oil farm and the S-3 ponds, government officials now say, weren't the best ways to dump chemicals. At one time it was the best available technology, they maintain. They say they didn't know what else to do with lethal chemicals and oil.

State authorities aren't so sure. Dumping oil on the ground and pouring chemicals in a pond, they contend, was no technology. It was ignorant. It was illegal.

"The people who ran Oak Ridge for years have been the same type people," said Barry Sulkin, a state water inspector. "The pollution we see started in the 1940s, 1950s and 1960s. Once it probably wasn't illegal to do it."

At some point in the history of Oak Ridge, Sulkin says, "they probably knew better, but there wasn't a law they were breaking. So when the laws came into effect, they had a choice. . .

"They could say, 'What we're doing is wrong and horrible and we're going to change.' Or they could say, 'Everything's fine.' But once you say that, you just have to maintain it."

That is what the federal government, stuck in its Cold War philosophy, chose to do. Today, the chemicals still pump into East Fork Poplar Creek.

The poisons still drift downstream to the rivers.

Overall environment

KASPAR

By RICHARD MERRITT

An update of the mercury and other environmental problems and the progress in solving them dominated a short City Council meeting Monday night.

Bill Kaspar, Department of Energy assistant manager for safety and environment, was on hand to brief Council. About six months ago, Joe La Grone, DOE Oak Ridge Operations manager, came before Council for a similar purpose.

Kaspar's presentation to Council consisted of updates of all the various environmental problems at the three federal facilities here, as well as the efforts and plans DOE is making to correct those situations.

Kaspar told Council that DOE is currently negotiating with the state in compliance reviews for all three of the plants, stating that his personal focus is "to look forward, get ahead with the job. La Grone asked the (DOE) inspector general to leave no stones unturned in looking back," over past events and practices.

Kaspar said that the inspector general will be looking at "the need for punitive actions if it is in order," and will also "take a look at the (past) management systems to see if it contributed to the problems."

Reaffirming DOE's pledges to be as open as p environment Kaspar told C looking for the communicate t what we plan to open approach tions."

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The Oak Ridger

35TH YEAR—NO. 229—482-1021 OAK RIDGE, TENNESSEE, TUESDAY, DECEMBER 6, 1983 25 CEN

To Knox Journal series —

A sportsman's response

Editor's note — Evan Means, outdoor columnist for The Oak Ridger since 1949 and prominent in state and national sportsmen's and conservation circles, retired from the Y-12 Plant in 1977. He had been with Y-12 since 1945 as an electrical supervisor. He writes here some of his reactions to the Knoxville Journal's series of articles on pollution in Oak Ridge published last week. Specifically, he reacts to the Journal's reports of deformed fish in local waters, the deformation attributed to pollution from Y-12 and Oak Ridge National Laboratory waste handling practices or lack thereof.

High in C

Some of the mercury disco in the city hav the Municipal Civic Center a of Energy cont ing program.

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ecovery plan in 90 days, Council told

ble about the concerns,' cil, "We are opportunity to situation and about it — an ith the solu-

recent hear- conducted by n Lloyd and Kaspar said out of it: A utside experts 60 days DOE fing on any ems between Environmental ; and within "overall en-

vironmental recovery plan," is expected.

One of the areas that Kaspar did not touch upon was the socio-economic impacts of the environmental problems.

"With all the research and studies," Councilman Harold Jernigan began, "is there anyone within DOE determining the socio-economic effects?" Jernigan mentioned the city's efforts "to become self-suifficient and independent."

Kaspar answered, "The only thing I am aware of is the Environmental Impact Statement for Central Waste Processing Facility. It will be addressing that point."

"I hope DOE will be willing to cooperate and help us overcome this burden," Jernigan said, "to overcome the hardships all this has brought about."

Kaspar also mentioned the issue of national security at the Y-12 Plant, which fabricates components for nuclear weapons, saying that declassification of materials is too time-consuming.

"We are concerned of the criticism that the department appears to be hiding behind it," Kaspar said of the national security issue. "We do defense work here — we'll never be able to be completely open. But we are moving ahead — we are processing security clearances for the EPA, and soon for the state."

On the mercury situation, Kaspar said that DOE, with Oak Ridge Associated Universities, has sampled over 1000 sites in Oak Ridge, adding that the state has recently released its guidelines for safe amounts of mercury in the soil — 12 parts per million.

"Below 12 ppm, we can be assured that there are no problems," he explained. "Above 12, we have to look at each particular site. As an example, we could have 200 ppm out in a grassy field, and that could be OK, while we could have 13 at a door stoop where a toddler plays," and that would require a remedy, while the first example would not necessarily require one.

Kaspar also touched on reports of employe exposure to mercury during the 1940s and 1950s at Y-12 where a lithium separation process was used in the production of lithium deuteride for thermonuclear weapons. This process used a great deal of mercury.

"It's obvious some of the exposures were quite high, especially at start-up," Kaspar told Council, "At that point, personnel monitoring started immediately — so we have a lot of data available. The previous studies showed no ill effects to workers."

Kaspar said that a "follow-on" study to past mercury exposure studies is being conducted by NIOSH (National Institue of Occupational Safety and Health) to "make sure the study is fair and above board."

He added that this study will include the recent employe survey by the Atomic Trades and Labor Council, as well as a blue ribbon panel composed of experts from Johns Hopkins University, University of Rochester, Duke University and

(Continued on Page 7 No. 2)

Hard frost

The season's first truly hard and killing frost is predicted for tonight with a low in the low 20s. Cloudy with rain sprinkles this afternoon. Fair and cold Wednesday. High today, already at 56; high Wednesday, upper 40s.

mercury

enter area

ghest levels of ed so far in soil een found near ilding and the he Department es its monitor-

les taken from November, four 12 parts per) guideline The Tennessee Health and En-

les were taken e. One sample 50 ppm, while ppm. These leased by DOE

made available within the next few days.

The monitoring program, conducted by Oak Ridge Associated Universities for DOE, was established last spring. It has been ongoing in an effort to determine the effects of mercury in the environment. The information collected is used by the interagency Task Force working toward a plan for the solution of the mercury problem.

The Task Force was formed last spring after DOE disclosed that during a 20-year period 2.4 million pounds of mercury was unaccountable. The mercury was used in a lithium separation process at Y-12 during the 1950s.

Selected soil samples

JOURNAL
CITY/STATE

Martin Marietta p

Proposes study of OR problems

By RANDELL BECK
Journal Reporter

Martin Marietta Corp. has proposed an intensive study of environmental problems in Oak Ridge, where 40 years of chemical and radioactive discharges have contaminated area streams.

The study, which would begin April 1 when the Bethesda, Md., firm takes over operations at Oak Ridge and Paducah, Ky., would concentrate on possible solutions to continuing pollution of East Fork Poplar Creek, White Oak Creek and Bear Creek.

Jim Alexander, a Department of Energy spokesman, said Martin Marietta proposed the study when it formally applied for the job to succeed Union Carbide Corp.

The three finalists — Martin Marietta, Rockwell International and Westinghouse Electric Corp. — addressed environmental problems at Oak Ridge, Alexander said. But Martin Marietta, which won the contract Tuesday, "went a step further."

Rockwell and Westinghouse, both rated above Martin Marietta by an Oak Ridge selection committee, said they were committed to solving environmental problems at the East Tennessee town. Martin Marietta, however, proposed a plan that could include methods to reduce discharges at the plants.

The energy department last spring disclosed a report that detailed the loss of about 2.5 million pounds of mercury from the Y-12 weapons plant from the early 1950s to 1966. That revelation, along with state efforts to stop other chemical dumping at the plants, has focused attention on environmental practices at Oak Ridge.

Union Carbide, which has managed the plants since World War II, defends its actions at Oak Ridge by saying it was told what to do by the Department of Energy. Martin Marietta officials, however, say things could change when the firm takes over next spring.

"We have addressed and worked with environmental problems wherever we have operated," said company spokesman Bill Harwood. "We've done many things to protect the environment. It is a basic tenet of our corporation."

A division of the company, Martin Marietta Environmental Center,

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By ADELE
Gannett News

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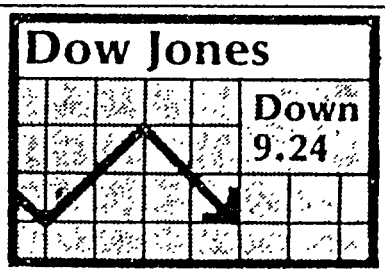


ans to cut waste discharges

E official: no firm 'clearly superior'

OWE
rvice

ON — A Department of Energy day said she was not bound by of the agency's own selection ying Martin Marietta Corp. the three Oak Ridge plants.

g system is part of the deliberad is not for release," said Martha ssistant secretary for manageinistration. "It was very close.. ly superior. Each is a very good ny one would have been a good

invited reporters for a 30-min- as defensive about her decision said she spent "hundreds of

Hesse surprised many Oak Ridge officials Tuesday when she chose Martin Marietta over two other firms — Westinghouse Electric Corp. and Rockwell International — that were given higher rankings by a five-member DOE evaluation team.

"I did not ask them (the evaluation team) for a recommendation, nor did they consider all the criteria," she said, adding the ranking given the other firms was not "a clearly superior ranking. There were certain areas that I disagreed with them on."

Hesse, 41, who has been with DOE less than a year, said she was chosen to award the contract because of her "extensive business and managerial experience."

While she would not detail the ranking system she used to make her decision, Hesse said there was a "less than 10 percent" difference between the three firms.

Among the factors that led Hesse to choose Martin Marietta over the other firms:

- "Supreme management capabilities."
- "A thoughtful, careful and specific proposal," which included a proposed organizational structure she found "interesting."
- A proposal for payment in which the base fee was lower and the award fee higher, which she said demonstrates the company's confidence in itself.

She said the fact that Martin Marietta has never managed a DOE facility was not a factor in her decision.

"We are glad to welcome another contractor to the DOE family," she said. "Martin Marietta has an outstanding reputation."

atters for the firm. ere the company is ent more than 10 g the Chesapeake

recently released area, including an emical discharged nuclear plants. The rks for other companies, as well as Martin Marietta, is expected to handle the study of Oak Ridge environmental problems.

Pete Dayton, chairman of the DOE selection committeee, said the government has not yet decided whether the analysis is needed. That, Dayton said, will be part of negotiations between DOE and the firm that start today in Oak Ridge.

Among items to be discussed in coming weeks, Dayton said, are salaries of Union Carbide employees who will be hired by Martin Marietta. All but a few of the 16,000 Oak Ridge employees, Dayton said, will remain with Martin Marietta.

Salaries, Dayton said, "will be equal and perhaps better" than current wages. Little will change in pension or retirement benefits, he said. Martin Marietta will give all employees credit for years worked under Union Carbide.

About two months after taking over in April, Martin Marietta must begin negotiations with Oak Ridge unions. Until those contracts expire, Dayton said, union wages will remain the same.

The major impact is (that) Oak Rid

Oak Ridge cleanup finally has begun

From Page A1

mercury poisoning.

In the past, the chief of the government's environmental branch, Jerry Wing, has said no one has been hurt by four decades of pollution, which included massive mercury spills in the 1950s and 1960s.

The state is cautious.

"When everybody's saying there's no imminent health threat, I prefer to say there's no evidence to show there's an imminent health threat," says Terry Cothron, assistant commissioner of the State Department of Health and Environment.

"In the end, people like Jerry Wing may be right about the mercury. There may be no long term health consequences of an adverse nature. . .But the man might as well be chiseling that into his epitaph."

■■■

Joe LaGrone looks more like a linebacker than the manager of the federal goverment's operations at Oak Ridge. He towers over his employees. Affable, sociable, he answers visitors' questions crisply and quickly.

Since his arrival in Oak Ridge last April, LaGrone's outspoken approach to environmental problems has impressed state and federal regulators.

He ordered an internal study on waste management. He asked outside agencies — the Centers for Disease Control, for example — for help in determining the effects of Oak Ridge pollution. State Health and Environment Commissioner James Word says the state "got lucky" when LaGrone replaced retiring manager Robert J. Hart.

LaGrone and other officials new to Oak Ridge "didn't have to defend decisions of their own," Word says.

LaGrone's appointment didn't change DOE's pollution emissions overnight, however. The plants still dump many toxic chemicals each day. Radioactive waste, thorium and uranium, still leak from burial trenches.

But LaGrone did accelerate the government's willingness to clean up Oak Ridge.

And other states, where the department of energy owns plants similar to Oak Ridge, are watching. What Tennessee does to force cleanup at Oak Ridge could set a nationwide precedent.

But Tennessee hasn't relied on the federal government's goodwill to reduce pollution. In May, state and federal officials agreed to a plan to reduce chemical emissions from the weapons plant. Word later turned that agreement into a commissioner's order.

Other groups remain suspicious of the energy department's intentions. A Knoxville-based group, Legal Environmental Assistance Foundation, sued to force DOE to

e is going to be heavily contaminated for an infinite period of tin

le by federal hazardous waste water quality laws. About 40 Ridge-area residents filed a arate legal complaint against the eral government. Both matters pending.

Oak Ridge plants "were able to pe the effect of environmental a lot longer than private in- ry," says environmental law- Gary Davis.

Now everyone will say that na- l security is more important profit, but to me, that is no ex- for contaminating the environ- t when it's not necessary," Da- ays.

I really don't think DOE's col- ave changed at all."

Davis' group wasn't the only one ing at Oak Ridge. Through the ia, the rest of the country has ed about problems at Oak e.

he Washington Post, for exam- called Oak Ridge "one of the t waste sites in the country."

he sudden burst of publicity ed some Oak Ridge residents, cially those in Scarboro. community is linked directly the weapons plant by East Poplar Creek.

me Scarboro residents used im in the creek. Others fished. o more. With the environmen- isasters of Love Canal, N.Y., Times Beach, Mo., firmly in the s of many, a Scarboro minister they're not about to take es.

t's so difficult for the commu- to understand the impact of (pollution) when they know so about all what mercury will says Forrest Harris, pastor of Valley Baptist Church.

Grone has taken steps to re- lieve the tension. He and DOE chemists met with Harris' congregation and other neighbors. The government offered to analyze samples of dirt from homeowners. Some Scarboro residents were worried their gardens might be contaminated by mercury from the creek.

The national publicity has many Oak Ridgers worried about the city's image. They fear the town's reputation as a research center has been damaged.

"Oak Ridge is becoming a national eyesore for discussing chemical and nuclear problems — and nobody likes that," Harris says.

■■■

In 1975, Oak Ridge scientists completed a multi-million-dollar environmental assessment of the Department of Energy's reservation.

The report, never released to the public, found significant concentrations of heavy metals — including lead, mercury, iron, nickel, zinc, cadmium and chromium — in the sediment of area creeks. It warned that contaminated fish could present a potential hazard to man.

Today, those chemicals remain, posing virtually the same hazards as before. Members of a joint state-federal task force studying the contamination at Oak Ridge must decide just what to do about it and what, if any, threat it poses.

There are few answers.

"We don't know the chronic long-term effects of heavy metals in the environment," says Michael Bruner, the state's assistant commissioner for health and environment.

"All we know is, we have some leads in some animal research," Bruner says. "We have some scanty things in the work environment, where you have concentrated doses of things like radioactivity, heavy metals and things like that, but not on the environment."

Assessing long-term exposure to radioactivity also is difficult.

"The people who know the most about it may have absolutely no credibility," says David McKinney, the state's regional health and environment manager. "For radiation exposure, you go to the rad-health physicists — they're all out at Oak Ridge. They all work for ORNL."

Because their jobs are firmly linked to the government, McKinney says, "They can't speak out on their own."

Before the task force can determine health risks, it first must determine the extent of the pollution. But, he warns, trying to solve the problem could make it worse.

Few know how to clean contaminated streams. Creek sediment can be dredged and buried in trenches. It would cost millions of dollars. And there are alternatives like dumping dirt in the creek. As the dirt flows downstream, dangerously contaminated sediment would be covered.

The second major problem facing the task force is groundwater contamination. Experts first must determine where the crucial groundwater flows from the Oak Ridge plants.

But once the contaminated water is located, few methods exist to clean it, state water inspector Barry Sulkin says. He says he only knows of expensive processes to filter out certain industrial wastes — not radioactivity.

The task force plans to finish its investigation within a year. One state official estimates it may take 10 years to clean up Oak Ridge.

Dirt has been spread over mercury-contaminated soil at Robertsville and Jefferson Junior High Schools.

U.S. Reps. Albert Gore Jr. and Marilyn Lloyd held congressional hearings in July on the mercury spills and later issued a report critical of the government's management of the Oak Ridge plants. The report ordered the energy department to prepare a list of pollution-control projects.

The cost of those projects, Gore says, could approach $100 million. The energy department, the nation's taxpayers, would foot most of that bill.

"I've talked with (Energy Secretary Donald) Hodel person about this. And he's told me t are going to make a commitmer do it right. They're not going to any punches," Gore says.

State officials argue $100 mil may not be enough to finish the Others say Oak Ridge may hav blank check for cleanup. Art Linton of the Environmental P tection Agency says negotiati among the Office of Managem and Budget, the Department of E ergy and EPA took care of that.

But energy department offic deny that has happened.

However the Department Energy gets the money one thing certain: Union Carbide Corp., wh has run the plants since World W II, won't be around to manage t cleanup. A new contractor — eith Westinhouse Electric Corp., M tin-Marietta Aerospace or Roc well International — will take ov in April. Union Carbide, one sta inspector says, didn't cause pro lems at Oak Ridge.

"The Union Carbide attitu was, 'We'll do anything that DO gives us money to do.' It didn come out of their pockets — it w no profit loss to them," says Lari Reynolds. "So they were willing t do anything. And they worked ver hard, their technical staffs, an really strove to provide solution that were economically feasible."

Union Carbide officials declin to be interviewed for this series i The Knoxville Journal.

The federal government alway ran the Oak Ridge plants. The De partment of Energy and its prede cessors set policy, deciding wha chemicals were dumped and buried And since environmental laws were established 15 years ago, it has been the government that used nationa security as its reason for avoidin the laws.

No single government official i responsible.

And pollution at Oak Ridge state authorities believe, will re main a serious problem for many years.

"The major impact is absolutely clear that the Oak Ridge reserva tion, including Oak Ridge city, is going to be heavily contaminated in the water and in the land for an infi nite period of time," says Michael Bruner of the state.

"I don't see a time when that en vironment. . .is not going to be a serious concern to all of us who have responsibility. They're long-lasting problems."

DOE earmarks more than $60

BY RANDELL BECK
Journal Reporter

The Department of Energy Wednesday unveiled an ambitious plan to combat pollution in Oak Ridge, devoting more than $60 million in its 1985 budget to reduce and treat chemical and radioactive waste.

The environmental budget probably will contain even more money than that, the government said, as officials divide another $100 million for the Y-12 weapons plant. That money also will be used for added security and improving existing buildings.

"Generally, we are increasing our emphasis on bringing our monitoring systems up to today's standards, and improving our controls on chemical and radioactive discharges," said Joseph Lenhard, assistant manager for energy research and development.

Environmental controls, however, are only a small part of the DOE 1985 budget. President Reagan is seeking $15 billion for the department, and more than half will be for weapons production.

The Y-12 weapons plant, which builds parts for nuclear warheads, is to receive $370 million for that purpose. That is up from $328 million for the current year. The Department of Energy's biggest plants are in Rocky Flats, Colo., Oak Ridge, Richland, Wash., and Amarillo, Texas.

Since last spring, however, the government has focused its attention on environmental problems in Oak Ridge.

That was when DOE released a report detailing the loss of 2.5 million pounds of mercury into the Oak Ridge environment.

There are other problems, too. Radioactive waste continues to leak from burial grounds and trenches near the weapons plant and Oak Ridge National Laboratory. The waste has contaminated creeks and the Clinch River.

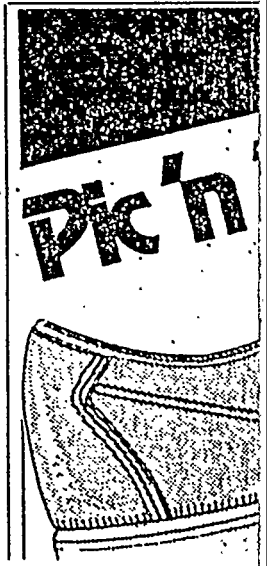
Those plants also discharge a variety of hazardous chemicals into area creeks. Those include White Oak Creek, which runs through the lab, and East Fork Poplar Creek, which begins as a so-called industrial ditch at the Y-12 plant.

Money will be divided between the lab, Y-12 plant and Oak Ridge Gaseous Diffusion Plant. The budget includes:

- $13 million for several enivornmental projects at the lab. About $3.5 million of that will improve pollution monitoring on and off the plant site. It also includes $2.5 million for construction of a central waste treatment facility for all three plants.
- $4 million for a new program to study hazardous wastes generated at most energy department plants and ways to regulate non-radioactive discahrges into streams. The program will be operated by the lab.
- $7.6 million at the weapons plant to monitor chemical discharges into East Fork Poplar Creek.
- $14.7 million at the gaseous diffusion plant to reduce discharges and dispose of solid waste.
- $17 million to build a facility that would burn material contaminated with uranium and polychlorinated biphenyls (PCBs), which cause cancer. The treatment facility would serve the thre plants.

In addition, Lenha million will go to the to beef up security, buildings and redu emissions. That money not yet been divided u

Although environ will increase in 1985 budget will decrease



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...ntal costs ...he overall ...Oak Ridge Operations, including facilities in Paducah, Ky., and Portsmouth, Ohio, are expected to receive $5.4 billion. The same plants this year received $5.8 billion.

The laboratory will be hit the hardest — losing money for research as a result of closing the Clinch River Breeder Reactor. Several projects in fuel reprocessing at the laboratory were related to the breeder. The Senate last year voted to halt further funding for the breeder reactor.

Fuel reprocessing in 1984 received $22 million for research. That figure has been cut to $8.5 million for 1985. Although about 100 persons will lose jobs as a result of those cuts, Alexander said DOE hopes to transfer them to other positions.

JUDGE TAYLOR

Court rules DOE must

By ROBIN HEAD INTEMANN

The decision in U.S. Federal District Court in Knoxville today that the Department of Energy must comply with federal environmental protection laws sets precedent for other federal facilities across the country.

Judge Robert Taylor ruled that DOE, at its Y-12 Plant, must comply with the Resource Conservation and Recovery Act and the Water Quality Act enacted by Congress.

Despite arguments from the Department of Justice for DOE, Judge Taylor found that the energy department is in violation of the law. DOE claimed exemption under the Atomic Energy Act of 1954. This act exempts federal facilities, such as the Y-12 Plant, from laws designed to control hazardous wastes.

The suit was filed last fall by the Legal Advisory Assistance Foundation and the Natural Resource Defense Council against the federal agency for violation of the environmental laws in Oak Ridge.

Following several months of reviewing DOE's actions directed toward the cleanup of hazardous waste at the Y-12 Plant site, LEAF, a Knoxville-based organization, and NRDC, based in Washi suit.

Wayne R spokesman, said ing's decision, course, beg preliminary ste lead to our appl mits. There has on any possible the (Department DOE."

Gary Davis, LEAF, said, " they (DOE) will with the law."

The Resource and Recovery A comprehensive p

• Number 9

Suit

— From Page One

seen in this state."

"The Department of Energy claims a sweeping immunity," Davis said, under the Atomic Energy Act. "This simply misstates the law."

Davis said that DOE's claim that RCRA does not provide for the protection of national security at Y-12 is an "unfounded concern ... RCRA also shares this concern."

"It strains the imagination to consider that Congress meant the application of the law to anything other radioactive hazards; it is clear that the law applies fully to the Y-12 Plant," Davis said.

"The conflict is between security needs and the health of the people of Oak Ridge," Davis said. "Federal agencies cannot rewrite federal law by agreement. The residents of Oak Ridge are entitled to the full protection of RCRA."

But Taylor refused to award any damages or civil penalties sought in the lawsuit. Davis said, after the hearing, that he believes "we don't need an injunction."

Taylor said the weapons plant must obey provisions of the Resource Conservation and Recovery Act of 1980 by applying for permits to store, treat and dispose of hazardous waste.

Government lawyers had argued the plant was exempt from the law because the plant was vital to national defense. They said regulating what the waste the plant could store and dispose of would in effect regulate what it could produce.

Rivkin. "As we view the memorandum, it's a deal the government cut among itself. It cuts out the citizens of this state," he said.

Several environmentalists were present at this morning's hearing which lasted under an hour. Representatives from Save Our Cumberland Mountains and LEAF attended the hearing.

Paul White, 101 Bennett Lane, said, "This makes me feel good see action like this." White is a member of an Oak Ridge group working with SOCM to correct environmental problems here.

"It gives a good feeling when an individual opinion against the establishment is important," Jim Young, a member of SOCM, said. Young lives in Roane County near the Oak Ridge Gaseous Diffusion Plant.

In making the ruling, Judge Taylor said the suit was both difficult and complex in that "it raises difficult problems."

4/13/84
The Oak Ridger

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transportation, disposal and handling of most hazardous waste. Judge Taylor agreed with the plaintiffs that "the defendants are in violation of of the Clean Water Act and the Resource Conservation and Recovery Act."

"The Y-12 Plant is a unique and essential element of the nation's defense," Judge Taylor said.

Arguments for the environmental groups were presented by Davis and Dean Hill Rivkin, Knoxville attorneys for LEAF. Frank Scanlin, deputy State Attorney General, presented the state's interest in the case. Barbara Finamore, with NRDC, was also present at today's hearing.

"The central issue as we see it today is whether the Department of Energy is above the law, specifically whether the United States government must comply with the scheme for controlling the environment," Rivkin said.

However, Roger Marzulla, special litigation counsel for the Department of Justice, said, "It is not whether the Department of Energy is above the law. DOE is certainly within the law. The question is what law applies"

Under the Atomic Energy Act, Marzulla said, Y-12 is protected because of involvement in the production of nuclear weapons parts. "To impair or shutdown the operation of Y-12 would be a serious blow to the defense posture of the United States," he said.

Marzulla said that the necessity of classifying certain information at Y-12 "would be compromised" if the resource conservation act were applied.

However, Davis maintained that DOE's claim to exemption under the Atomic Energy Act of 1954 is invalid. He described Y-12 as "one of the worse environmental disasters we've

(Continued on Page 8 No. 9)

RIVKIN

the Oak Ridger

35TH YEAR—NO. 252—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, JANUARY 6, 1984

Westinghouse, city discuss n-wastes

By RICHARD MERRITT

The idea of $2 to $3 million in annual revenues to the city seemed to impress members of City Council Thursday night.

What would they have to do to get it?

Officials from Westinghouse Electric Corp. were on hand Thursday night to describe the Hittman concept — a new way of storing and handling low-level radioactive wastes.

And while the plans are still in the very preliminary stages, Westinghouse officials said the city could earn $2 to $3 million annually during the expected 30-year life of the facility. These figures are based on the facility handling about one million cubic feet of waste per year, and the city could receive between $2 and $3 per cubic foot in revenues. Other benefits that could come to Oak Ridge include a stable employment base, research grants, and possibly an employment training center.

The company pointed out many times, and emphasized, that they won't even begin to plan for such a facility in Oak Ridge unless there is clear community support for such an idea.

The Hittman concept can "turn a negative situation into a positive advantage," James George, manager of the local Westinghouse Engineering Center, told members of Council and the Environmental Quality Advisory Board.

"The concept identifies economic considerations and advantages in a low level waste storage facility in the city," George continued. "Westinghouse will construct and operate the facility if (strong emphasis on the word if)

(Continued on Page 9 No. 7)

containers), it can be capped. So, he continued, once the last area is filled, the entire area has already been sealed.

Mallory said that from beginning to end, locating a facility takes four to five years, which takes into account environmental studies, site selection, licensing and actual construction.

"In Oak Ridge," Mallory said, "there is a lot of environmental work that has already been done, and there is a lot of nuclear expertise here. You have background on many sites completed already."

If Oak Ridge decided to be the site for such a facility, Mallory said the city could expect to receive $2 to $3 per cubic foot of waste stored. The going rate for storing wastes is in the $30 to $50 per cubic foot range — depending on the type of low-level wastes and the method used for storing it.

Also, a certain amount would be set aside, based on volume, that would be placed in a special state fund to care for the site after its estimated 30-year life span.

Councilman Alan McNutt asked how much would go to the state for perpetual care of the facility, and Mallory answered that as an example, Barnwell generates about $2.35 per cubic [illegible] maining sites [illegible] already been completed.

Mallory said that because of the economies of scale, the Hittman concept could handle the DOE waste cheaper than DOE ever could.

Mayor Pruett, in response to a question from Jo Ann Garrett, said that while this is the best time to be considering such a plan — given the recent negative publicity of pollution in Oak Ridge — that if the city decided to act on the concept, he would forward the proposal to City Manager Lyle Lacy and his staff for review and study.

"The volume of these wastes is growing rapidly, while the capacity to store them is decreasing," Mallory explained, adding that currently there are only three commercial sites in the country that store low-level wastes: Barnwell, S.C; Hanford, Wash.; and Beatty, Nev.

The driving force behind locating more sites is the Low Level Radioactivity Policy Act, enacted in 1980, which states that every state must make its own arrangements for storage of its wastes by 1986, and the act encourages the formation of regional compacts.

After 1986, the act says, states can refuse to store waste generated outside the state or compact. By 1986, the three remaining sites [illegible] already been completed.

Mallory outlined the sources of low-level wastes:

- Fifty percent of these wastes come from commerical utilities, and the wastes include contaminated clothing, tools and equipment.
- Twenty-two percent of the wastes come from industrial uses, and are the byproducts of such processes as tracing flow and detecting structural defects.
- Another 19 percent originates from hospitals, clinics and research and development operations where radionuclides are used in treatment and research of diseases.
- The remaining nine percent of this country's low level waste that is commerically stored is generated by the federal government — mostly from Department of Defense operations, as well as by the national laboratory system.

perpetual care fund.

McNutt also wanted to know how the amount the city would receive would be determined, and George answered that that would be a negotiated amount, and would be part of a negotiated contractual agreement.

"I'd like to know more about the financial risks," said Councilman John E. Jones Jr. "Oak Ridge is not an ideal site. Does this technique lend itself to reducing the problems here?"

"The Hittman concept can be adapted to almost any site," Mallory repsonded. He added that a site search in Oak Ridge has not begun, and will not until there is firm support for the concept in the city.

Jones went on to say that the revenues the city would receive, as well as the estimated 150 new jobs it could create is indeed impressive, but he added that shouldn't be the main reason why the city should agree to such a plan. He suggested that an effort be made to see if it would be feasible to combine the Department-of-Energy's planned facili-

they will accept, so more sites need to be found.

"The Southeastern compact has already been approved by all the states," Mallory explained, "and it is now awaiting congressional approval."

Mallory pointed out that the Barnwell facilities have stated that no more wastes will be accepted after 1992, so another site will have to found within the Southeastern compact.

Under the Hittman concept, the barrier wall is erected around the site, and as different areas within the site are filled, they are capped with a layer of concrete, and then clay. This is done so that if any cracks or leaks develop, the clay acts as a sealer.

Mallory explained that the walls are constructed first, instead of after the site is filled, so that as each area is filled with the community will support it — we won't go into a community without support."

Also present at the work session to describe the specifics of the Hittman concept was Charles Mallory, senior technical adviser for Hittman Nuclear and Development Corp., Columbia, Md., a wholly owned subsidiary of Westinghouse.

Mallory explained that the Hittman concept is an alternative to shallow land burial in trenches — the most common method for storing low-level wastes — and that the concept came about from Hittman's experience in maintaining and cleaning up a shallow land burial site for the Commonwealth of Kentucky at Maxey Flats.

Instead of the spread out shallow land burial system, the Hittman concept concentrates the waste in a smaller area, and barr[illegible] walls are constructed arou[illegible]e area to contain the wastes a[illegible]d aid in water control. Unlike sh[illegible]w land burial, the Hittman concept allows for decommissioning of the site as it fills up, so once the entire site is filled, the bulk of the decommis-

Pollution Reports Hamper Launch of Oak Ridge High-Tech Campaign

11-13-83

by FRANK MUNGER
News-Sentinel staff writer

The Changing Face of OAK RIDGE

First of 3 Parts

OAK RIDGE — If no news is good news, Oak Ridge must be having a very bad year.

"I'm not sure it's been exactly a bad year, but I don't think it's been all that good," Mayor Roy Pruett said.

Pollution problems, some of them festering since World War II days when Oak Ridge was working on the first atomic bomb, became the city's badge of dishonor in 1983.

State health officials began painting the public picture late last year when they posted East Fork Poplar Creek as a hazard, warning that the fish contained unhealthy levels of mercury.

Attention grew after the state's Feb. 23 inspection of the Y-12 nuclear weapons plant, where investigators found "serious environmental problems associated with present and past waste-disposal practices."

But the most startling revelation was contained in a 1977 report, which the Department of Energy (DOE) declassified and made public May 17. It said an estimated 2.4 million pounds of mercury had been released into the environment from Y-12, mostly during the 1950s and '60s.

Earlier, DOE officials had blamed the creek's contamination on a 1966 mercury spill in which about 100,000 pounds seeped into the ground or flowed to the creek. But shortly before the report's unveiling, DOE recanted and said the pollution derived from "historical releases."

What followed was a full-scale environmental shakedown. The other government-owned complexes — Oak Ridge Gaseous Diffusion Plant and Oak Ridge National Laboratory (ORNL) — were inspected. A congressional hearing was held. Task forces were formed. The probe broadened to include radioactive pollutants and the maze of waste burial grounds that dot the DOE reservation.

The investigation continues.

For city officials and civic leaders, painfully trying to change the image of "Atomic City," it couldn't have come at a worse time.

"The negative side is the continuing image of Oak Ridge glowing in the dark because of the presence of radioactivity," said Jo Ann Garrett, chairman of the Committee of 50, a citizens group formed to help guide the city's future on a positive course.

"It's the image we got in World War II, and we haven't tried to enhance it," she said.

Mrs. Garrett and others want Oak Ridge to be known as a research center and a high-technology growth area. Recent events, such as the loosening of consulting restrictions on scientists here and a change in the patent policy, have enhanced Oak Ridge as prime ground for new, spinoff businesses. The expertise and manpower are here, ready to capitalize on the squeaky-clean computer age. But pollution problems cast an ugly specter.

"The attention has been bad to the city," Pruett said, "particularly all the various hearings we've had on mercury and the subject of bringing additional DOE (Department of Energy) waste here. There's a little black cloud hanging over Oak Ridge saying it's a dirty city."

Real-estate sales slowed. Some officials, already concerned about the city's declining population, claimed that West Knoxville dealers were using Oak Ridge pollution as a sales tool.

"We have reason to believe that, but we can't prove it," Pruett said.

One huckster tried to capitalize on the fears of local residents by advertising a water purifier that would remove the nasty mercury from their tapwater. But there weren't — and still aren't — any reports to indicate the presence of mercury in the city's drinking water. After complaints, the newspaper ads were removed.

Attendance at a string of public meetings during the spring and summer months indicated concern among the residents, particularly in the predominantly black Scarboro community which is closest to the Y-12 Plant. Hundreds of Oak Ridgers, worried about contamination of their gardens or wells, took advantage of free soil and water tests offered by DOE.

"I never trusted them (the government) when we came here, and I don't trust them anymore today," said one woman, whose husband has worked at Y-12 for more than 15 years. She asked not to be identified. "They don't tell you nothing and then they want you to believe them when they get on their high horse and tell you it's not going to hurt you. I don't believe them."

But some claim that public concern was brief, now quieted, and was due mainly to excessive news coverage from outside Oak Ridge. Former Mayor Al Bissell has been one of the most outspoken, saying the environmental charges were "trumped up" and "overblown" by the press.

"Perceptions are just as damaging as the real facts," Mrs. Garrett said, stressing that no immediate health hazards have been determined.

"Oak Ridgers don't get excited about things," she said. "They've lived with it and worked with it and know the processes. Most Oak Ridgers knew about the mercury. They weren't surprised."

Surprised or not, residents couldn't help but notice some changes.

Bulldozers moved fresh dirt over mercury-contaminated areas at two junior high schools. Children were told not to wade in the East Fork. A major construction project was halted while elaborate safety measures were conceived for rerouting a section of the creek. Technicians taking samples or monitoring for pollutants were a common sight, some days outnumbering the police force.

Times are changing in Oak Ridge.

Next: Uranium enrichment — What is Oak Ridge's future?

Welcome to

Oak Ridge

warning:
POLLUTION

ear of Oak Ridge Pollution Action

c. 2, 1982: State health officials post warning signs along East Fork Pop- because of excessive mercury contamination in fish.

b. 23, 1983: State health officials inspect Y-12 Plant.

rch 17: State sends notice of nonco- pliance to Department of Energy, lining "serious environmental problems at Y-12 Plant."

y 1: DOE says it has reported 740 violations of EPA permits for its three k Ridge plants in the past eight years.

y 17: DOE releases report showing 2.4 million pounds of mercury was eased into the environment from Y-12.

y 20: DOE's Office of Inspector General confirms that it is investigating gations of mercury-information cover-up.

y 23: Joe La Grone, DOE's Oak Ridge manager, offers free soil tests to idents concerned about mercury contamination in their gardens.

y 26: Memorandum of Understanding, setting preliminary steps for anup of Y-12, is signed by DOE, state Department of Health and Environ- nt, and U.S. Environmental Protection Agency.

y 31: DOE confirms that mercury spills also occurred at Oak Ridge Na- nal Laboratory, contaminating White Oak Creek.

ne 23: Multi-agency task force studying Oak Ridge pollution problems first meeting.

y 11: Reps. Marilyn Lloyd and Albert Gore Jr. hold congressional hearing Oak Ridge pollution problems.

y 13: State inspects Oak Ridge Gaseous Diffusion Plant.

y 15: State Health Commissioner Jim Word tours Y-12 waste sites for t-hand look at pollution problems there.

g. 3: State reports on some areas of environmental concern at ORGDP, gives it an overall good grade.

g. 19: Officials announce that mercury-contaminated areas at Jefferson Robertsville Junior High Schools will be covered with fresh dirt.

g. 23: State inspects ORNL.

ot. 15: State issues "complaint and order" against Y-12 plant, legally ding DOE cleanup actions.

t. 25: DOE report shows Y-12 workers in at least two buildings received avy mercury-vapor exposures during 1955-56.

t. 28: State sends DOE non-compliance notice for ORNL, citing numer- s instances of radioactive pollution.

v. 3: Congressional report, based on July hearing, recommends DOE ablish independent review panel and submit plan showing how Y-12 can modernized to handle waste more safely.

v. 3: Multi-agency task force approves preliminary plan for in-depth study Oak Ridge pollution.

URCE: News-Sentinel files

staff graphic by Rainey Kirk

JANUARY 15, 1980 Second Class Postage Paid At Oak Ridge, Tenn.

Health Dept. 'compliments' many

By SHARON FITZGERALD

The holiday season may be over, but there are some Oak Ridgers still spreading good cheer.

Today is National Compliment Day, at least according to a magazine called Teacher, published by Macmillan Professional Magazines, Inc. So why not seize the opportunity by the horns and give a compliment where a compliment is due? The Oak Ridge Department of Health Services has.

Jim Harless, environmental health supervisor, has spearheaded an effort among his co-workers to pass around a kind word or two. Animal control of-

complaints being submitted to the Health Services Department.

• The City Public Works Department for the fall clean-up service, close adherence to advertised collection schedule, and the Public Works' current work toward a new local sewage treatment plant.

• Oak Ridge Lions Club for its support and donation of new equipment for the Oak Ridge Health Service Nursing Program. Also saluted is the environmental health program assistance and back-up provided by nursing staff.

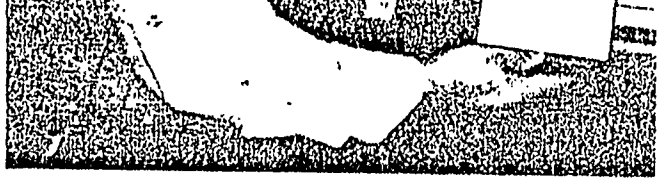
• Environmental Quality Assurance Board on its con-

• The men and women who serve with "HOME" (Home Ownership Made Easier). This group assists residents of Anderson County with loans of tools, etc.

• The staff of Community Service for Exceptional Citizens who have brought so many people back into the community.

• The staff and volunteers at Daniel Arthur Rehabilitation Center for their efforts to teach and rehabilitate the handicapped.

• The Roane-Anderson Medical Auxiliary for assisting in providing volunteer help in special immunization and blood pressure screening clinics.



On Jim Harless's calendar, today is National Compliment Day.

vices staff have issued this list of compliments to organizations and groups which contributed to better public health. They compliment:

• Oak Ridge Kennel Club, Humane Society, and the American Association of University Women for providing equipment, funding and other support for the local accomplishment of more responsible animal ownership.

• Oak Ridge veterinarians for providing paid and free professional services in support of local Animal Control work, and in saving citizens transportation costs by offering City animal registration licenses from the veterinarian's office at the time of pet vaccination.

• Oak Ridge Animal Control Officers in their effort to operate a comprehensive Animal Control Program. They salute the officers' effort to use education in schools and elsewhere, and the increasing emphasis on enforcement and animal owner court citations for leash law offenders in preference to animal handling or animal apprehensions.

• Oak Ridge food service operations, about 70 percent of which operate with a Grade A rating, with the remaining graded B, and none graded C.

• The Federal Water Treatment Plant, and its operator, for providing quality drinking water. Health Services weekly bacteriological monitoring indicates good quality water.

• TIDI Waste, Inc., for dependable handling of local commercial and residential solid waste services, with only minimal service questions or

recognition for successful local projects.

• Many local Oak Ridge automobile service centers that have recently agreed to accept individual citizen-generated quantities of used motor oil from do-it-yourself oil changers. Although the price of used oil is rising, the willingness of such establishments to accept such waste oil is a public service and a recycling alternative.

• The local Girl Scout organization for continuing a local paper recycling program longer than other local organizations and up to the present time. Using the volunteer workers, the work has never been discontinued even when paper prices have been low. The funds generated are used for worthwhile local projects.

• The Oak Ridge Cancer Cupboard for supplies for home patients.

• FISH for providing transportation to our clinics for patients who otherwise could not come.

• Church groups who sponsor immigrant families from Laos-Vietnam. These members spend time helping these families settle in Oak Ridge, find homes and work, enroll children in school, and follow through with health problems.

• The Home Aide Service for providing a very needed service staffed by skilled and caring people.

• Volunteers who spend time, energy and money to assist in the rehabilitation of alcoholic men and women in their group homes, and the teenage girls residing in the Group Home for Status Offenders.

American Red Cross for offering cardio-pulmonary resuscitation refresher classes to the community and Health Services employes.

Inside

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Incinerator may reduce toxic runoff

By KEN RENNER
Journal Capitol Reporter

NASHVILLE — A $30 million Department of Energy project under way in Oak Ridge could result in drastic reductions of hazardous wastes draining into nearby streams.

A high-temperature incinerator will be built to burn cancer-causing polychlorinated biphenyls (PCBs), waste oils and low- and intermediate-level radioactive waste generated or stored at Oak Ridge and two out-of-state plants.

The agency has chosen the Denver engineering firm of Stearns-Roger to design the incinerator, which is to reduce the wastes to a far less toxic ash that will be combined with cement and injected deep underground.

Although the state has recently banned all deep well injection of radioactive materials, Department of Health and Environment officials concede there is little they can do about DOE's use of the technique to

To inject waste underground, a well is drilled to a depth of about 1,000 feet. At a determined level near the bottom, a slit is blasted in the well and water is pumped in at high pressure to create fractures in the underground shale formations.

Then the mixture of waste, cement and other materials is pumped into the cracks, resulting in a "pancake" designed to harden and lock the waste into the rock formations.

While state officials are concerned about the possibility of waste leaking from the wells into nearby underground water supplies, DOE insists there is no danger after the two to three days it takes for the materials to harden.

Materials burned in the incinerator are also destined for underground disposal.

Radioactive waste and oils contaminated with highly toxic PCBs are to be shipped from DOE's Portsmouth, Ohio, and Paducah, Ky., plants, combined with those now at Oak Ridge and burned to decompose the PCBs.

"We would only have jurisdiction on a federal facility if we assumed primacy from the Environmental Protection Agency. If we assume primacy, we could only invoke their rules, not ours," said Don Rima, a geologist in the department's water quality division.

Primacy would give the state complete jurisdiction over enforcement of water quality rules. Since EPA allows deep well injection, Rima said the state is powerless to enforce its rules on the Oak Ridge plant.

Despite the state rule, DOE officials maintain the technique is harmless.

Stan Ahrends, director of DOE's Oak Ridge energy research and development division, said deep well injections began there about a decade ago on an experimental basis.

After more than a dozen waste injections, the experimental site was closed and work began on a "production" facility designed to take waste for the next 30 years. Full-scale injections began there last year.

erations in 1987, DOE estimates its plants will have 650,000 gallons of dangerous liquid waste and 7,150 tons of solid waste in storage, much of it containing low-level radioactivity.

Another 220,000 gallons of liquids and 20 tons of solid waste are expected to be generated every year — more than 75 percent of which will come from operations at various Oak Ridge plants.

Much of the existing waste is being stored in facilities suspected of leaking and contaminating area waterways.

For example, New Hope Pond contains radioactive material, mercury and PCBs that are suspected of draining into East Fork Poplar Creek, which the state has already posted as dangerous due to mercury poisoning of fish.

Another heavy concentration of PCBs and solvents is at the so-called "oil land farm," where solvents laced with the cancer-causing chemical have for years been plowed into the ground. Drainage from the plot is suspected of contaminating Bear Creek.

Cost slows key step to cleanup of Y-12 toxic waste dump

By ROGER KING
Journal State Reporter

OAK RIDGE — One of the major steps in a recent agreement between federal and state officials over the cleanup of toxic wastes in Oak Ridge has been shunned for years because federal Department of Energy officials have considered it too expensive.

The step involves stopping the discharge of nitric acid wastes from uranium chemical processing at the Department of Energy's Y-12 plant into four "S-3" holding ponds near the plant.

The cleanup and closeout of the S-3 ponds is a major part of the memorandum of understanding (MOU) between DOE, the federal Environmental Protection Agency and the Tennessee Department of Public Health signed May 26, 1983, concerning the disposal of non-radioactive wastes on the federal reservation in Oak Ridge.

The MOU, although not a legally binding document, decrees that by July 1, DOE will submit to EPA and state officials a proposal to cease all discharge of waste to the S-3 ponds.

By Sept. 1, DOE will "submit a closeout proposal to include plans and specifications and implementation schedule" for the ponds, the document notes.

"Upon elimination of the S-3 ponds as a source of contamination to surface waters, DOE agrees to submit a plan and schedule for rehabilitation of Upper Bear Creek," the document notes.

State officials have noted that cally aid in their cleanup, was originally scheduled to be operational in July 1976.

The description of the plant was outlined in a Jan. 6, 1976, memo from Energy Research and Development Agency official William H. Travis to Paul J. Traina, director of EPA's Enforcement division.

Travis' letter said $1.7 million was put aside in the 1974 federal budget for the plant. But the plant was never built.

Travis' letter notes: "Since these proposed facilities (the treatment plant) are necessary to eliminate use of the S-3 ponds, any practical plan for cessation of operation of the ponds must include action on the budget item."

But nowhere in the MOU is the stalled acid waste treatment plant mentioned.

Another letter, dated Jan. 19, 1976, from Jerry Wing of DOE's Environmental Protection Branch to James Holdaway, EPA federal facilities permits coordinator, addressed the S-3 ponds and the funding dilemma.

"The problem of the literal elimination of the S-3 ponds is compounded further by the unavailability of alternate disposal routes for the other miscellaneous flows to the ponds.

"A project for the alternate treatment of most of these waste flows was proposed as a fiscal year 1976 project and submitted in Nov. 1973.

"After it was determined that ERDA could not support this project over other priority items, the

the effluent from the holding ponds, which documents obtained by The Knoxville Journal note also include "various wastes from pickling, plating and miscellaneous chemical operations," eventually runs into Bear Creek, then into the Clinch River.

An acid waste treatment facility near the Y-12 plant, which would eventually eliminate nitric flowing into the ponds and therefore drasti-

moved to fiscal year 1980 budget as part of a larger and broader treatment project to meet the potentially more restrictive 1983 requirements," the letter said.

Travis' letter also notes that "costs of major alterations to the ponds that might bring about any significant improvement in the water quality of Bear Creek would be so high as to be prohibitive."

Mercury Spills Near Weapon Plant Prompt Dispute in Oak Ridge, Tenn

By RONALD SMOTHERS
Special to The New York Times

OAK RIDGE, Tenn., May 22 — "It's a miracle city," said Mayor Alvin K. Bissell.

"It's an aberration," said Steve Gough.

It is not surprising that the two men hold contrasting views of this town, which was started from scratch in 1943 and run for many years by the Federal Government as a weapons research and parts production facility. Partly as a result of Mr. Gough's suspicions and his surreptitious tests, Mr. Bissell's "miracle city" in the Cumberland foothills has become the center of a controversy over huge mercury spills.

Mayor Bissell, 71 years old, has held office for the last 25 years and was one of Oak Ridge's original settlers. A good-humored and tireless town booster, he is not alone in extolling it as a mecca of "good" science, patriotism and the good life. He and many other residents take pride in the complex's role in making the atomic bomb in World War II, and in its current task of uranium enrichment, energy research and fabrication of some parts for weapons, such as the MX or cruise missile.

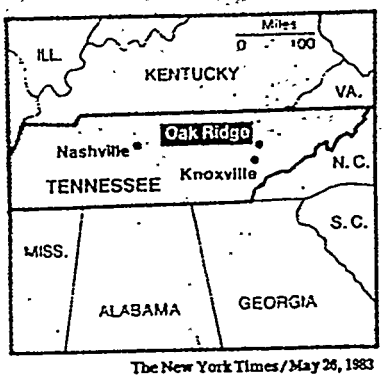
'Town With a Mission'

"It just erupted, rose up out of farmland, and it was a one-industry town with a mission," said the Mayor. "And it succeeded in that mission."

Mr. Gough, a 32-year-old research biologist, on the other hand, had until last year lived in Oak Ridge for six years and worked for Union Carbide, which operates the complex's research laboratory and its two sprawling manufacturing facilities. In 1981 he secretly took samples of water and plant life from the East Fork Poplar Creek near the Oak Ridge complex's Y-12 plant, had them analyzed and found high concentrations of mercury.

Mr. Gough, who was part of a Union Carbide environmental monitoring team at the uranium enrichment plant on the property's western part, suspected there was contamination from the Y-12 plant, which made weapons components, on the far eastern part. This area was not being monitored to the his knowledge.

Mr. Gough reported his findings and subsequently complained to the Department of Energy that Federal officials at Oak Ridge had done nothing about them. Afterward, he said, he suffered a "subtle kind of ostracism" in the city and eventually left.



The New York Times/May 26, 1983

Mercury report distresses those who fish for sport in Oak Ridge.

Peer Pressured Cited

"It is an intellectual ghetto, an aberration in which there is enormous peer pressure to conform," said Mr. Gough, now a computer software specialist with a military contractor in Fredericksburg, Va. "There is a definite feeling there that whatever is done is sanctioned — it's O.K., it's good science."

Mr. Gough's work and subsequent investigations by the Tennessee Department of Health and Environment led to disclosures last week that from 1954 to the present there had been unpermitted discharges or unreported spills of up to 2.4 million pounds of mercury at the Y-12 plant.

Barry Sulkin, an investigator for the state agency, said that tests on bluegill fish showed higher mercury content than permitted by Food and Drug Administration standards as well as high concentrations of mercury in sediments and grass. Since then, two Congressman from the area have scheduled hearings next month on the mercury spills, the Department of Energy has announced an inquiry into charges of a coverup of the spills, and the Environmental Protection Agency and state agencies have further delayed action on renewing the facility's license to discharge waste into the creek.

"At this point I consider it an envi mental problem and not necessari health problem," said Mr. Sulkin. ' I think its just the tip of the iceber problems here."

"The rest of the problem is what pened to radioactive wastes and P that they have used and what they doing today," he said, referring to chlorinated biphenyls.

Absorption of Mercury

Solid mercury, either dissolve water or locked in sediment, is easily absorbed by fish or humans the action of anaerobic bacteria in water, sediments, fish or hur creates methylmercury, which is e absorbed. Methylmercury in doses can cause nausea, vomiting ney damage, loss of memory, slu of speech and brain damage.

Little is known about how solid cury moves through waterways. A study by the Virginia State Water trol Board of mercury discharges Holston River showed methylme levels in fish and water increasi years after the mercury disch stopped and as far as 75 miles dow river from the original source.

Dr. William R. Bibb, the Depart of Energy's director of energy grams at Oak Ridge, said the me discharges and spills were linke lithium separation process at the plant that was in use from 1953 to 1

But he said that their own s showed no more than 500,000 pou the metal went directly into East Poplar Creek. An estimated 1.9 m pounds that was discharged or s he said, seeped into the deep fissu the layers of clay, limestone and under the 93-square-mile comple remains trapped there.

Dispute on Contamination

There was little likelihood, he s contamination to drinking wat cause the city's water supply is upstream of the plant. As for th taminated fish, a report by offic the facility suggested that sinc Ridge was a "relatively affluent East Tennessee, populated by sci and engineers who have other li suits than habitual sports fishi seemed unlikely there would be lem from fish consumption.

Barry [illegible]in, far left, investigator for the Tennessee Department of Health, says fish caught in Oak Ridge, Tenn., show a high content of mercury. Mayor Alvin K. Bissell, left, would prefer to have all facts at hand before assigning blame. Jimmy Fuzzell 2d, below, a resident, says he swam in the local creek and ate fish caught there.

The New York Times/Michael Patrick

Jimmy Fuzzell 2d disagrees. He is one of about 1,500 blacks in the Scarboro, a community along the East Fork Poplar Creek about 100 yards from the fence around the complex and barely two miles from the Y-12 plant. Scarboro was also built by the Government and laid out with such street names as Tuskegee, Bethune and Carver.

Standing on the banks of the creek, the 33-year-old Mr. Fuzzell talked of how as a child and as an adult he and others ate the small smeltlike bluegill, as well as turtles taken from the creek. He remembers swimming in it and swallowing a lot of water, he sa[illegible].

With high unemployment among blacks in the city, there was more fishing there until recently, he said. He said the report's comment about the paucity of fishing in the creek struck him as typical of the attitudes in Oak Ridge.

'Needs of the Elite'

"This town is structured around the needs of the elite and no one else," he said.

A neighbor, E. L. Henderson, who works at the complex, said that he, too, swam and fished in the creek as a child but that he was not worried about the reports on contamination.

"Some people say that this is because they want to close Oak Ridge down, and the employees are worried about that," said the 30-year-old Mr. Henderson. "I'm not worried about the mercury, but I would worry about it less if they stopped writing about it."

Mayor Bissell said that most Oak Ridgers had not mentioned the reports of mercury spills to him and that he suspected this was because, being people of science, they are reasonable people who wait to hear all the facts and believe all things are solvable.

"We believe here that the dumber you are, the better critic you make," said the Mayor.

Researches to probe possible mercur

By TERRY McWILLIAMS
Journal Reporter

OAK RIDGE — Government researchers plan to probe the habits of city residents who live near mercury-contaminated East Fork Poplar Creek, downstream from the Energy Department's nuclear weapons plant.

Beginning next Monday, the state division of epidemiology will be surveying residents to help determine what, if any, health impact resulted from four decades of mercury spills and waste releases from the Y-12 plant.

To do that, state staffers will ask as many as 1,000 people whether they ate fish caught from the stream or consumed vegetables grown in the stream's floodplain.

They'll also ask if people have jogged at the city's civic center, where high concentrations of mercury have been discovered in soil apparently dredged from the creek and deposited there.

Later, the state will take urine and hair samples from possibly 400 people for mercury analysis.

"This is a preliminary study, and it's only intended to show apparent differences of people who may be at-risk and those who are not at-risk," said Pat Turri, director of the state's environmental epidemiology division.

"If there are significant differences between those groups, we will take a more intensive look at that population," he said.

Turri agreed with earlier analyses by experts that mercury contamination presented no imminent health hazard to Oak Ridge, including the Scarboro community.

"But if there's something going on, it will be a very subtle change which would not manifest itself in a clinical change," he said.

Turri, who helped set the state's contamination guideline of 12 parts of mercury per million parts of soil (12 ppm), said the survey will involve residents who live near East Fork Poplar Creek, plus those people

contamination in OR

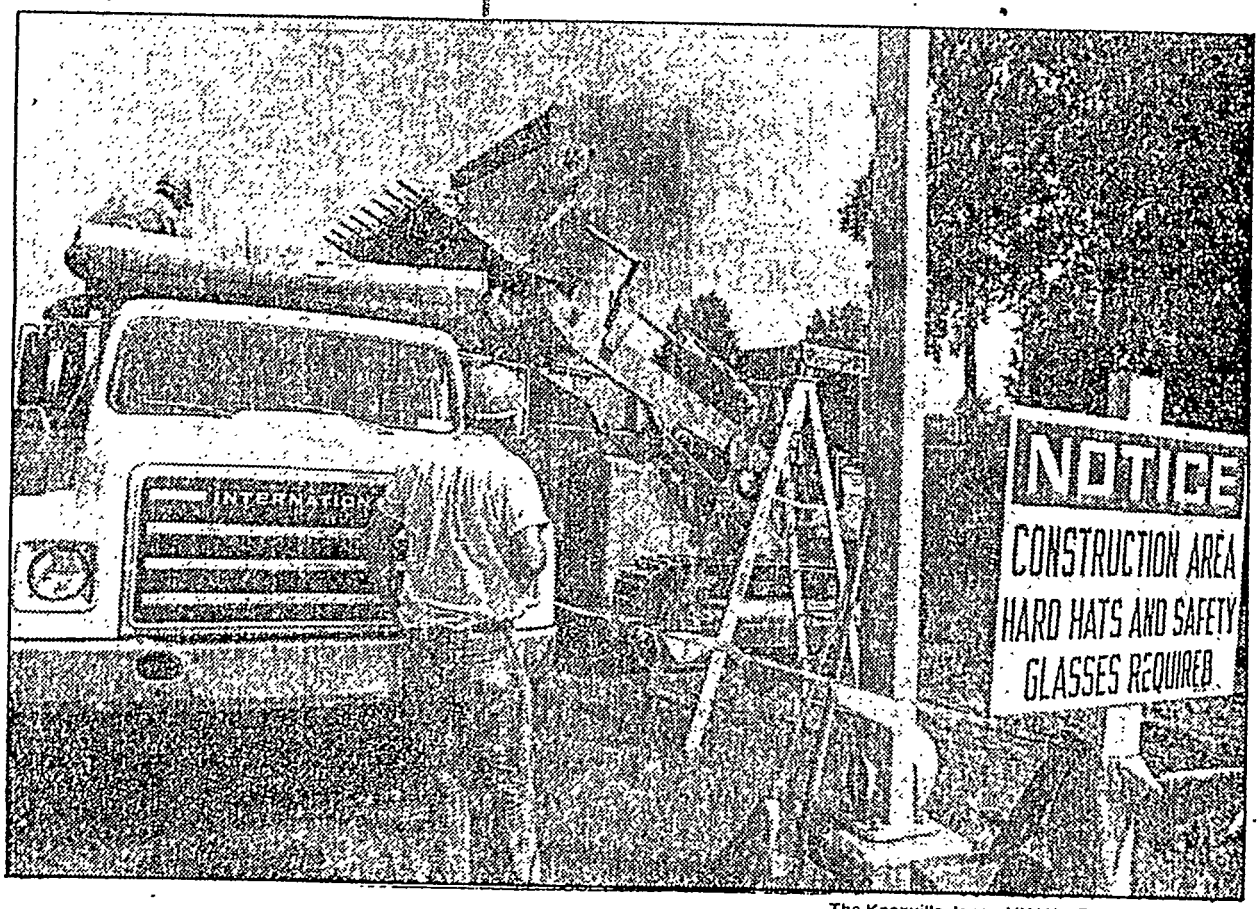
ilve near sediments dredged from the
am.
he questionnaire will help the team de-
ine all sources of mercury intake by
lents, even food bought at the grocery.
said even tuna fish contains some
ury, for example.
he hair samples may indicate human
umption of methylmercury, an organ-
xic form of mercury found in fish tis-
The urine tests will show elemental or
anic mercury intake within the last
le of months.
urri said possibly the most difficult
of the study will be catching people at
, because of vacations and work
schedules. Most of the surveying will be conducted between 1 and 8 p.m.

With assistance from the national Centers of Disease Control in Atlanta, the team of six researchers plans the house-to-house survey during the week of June 25. They'll skip the next week, then return for hair and urine samples the week of July 9

Oak Ridge city officials said they'll assist the effort if needed.

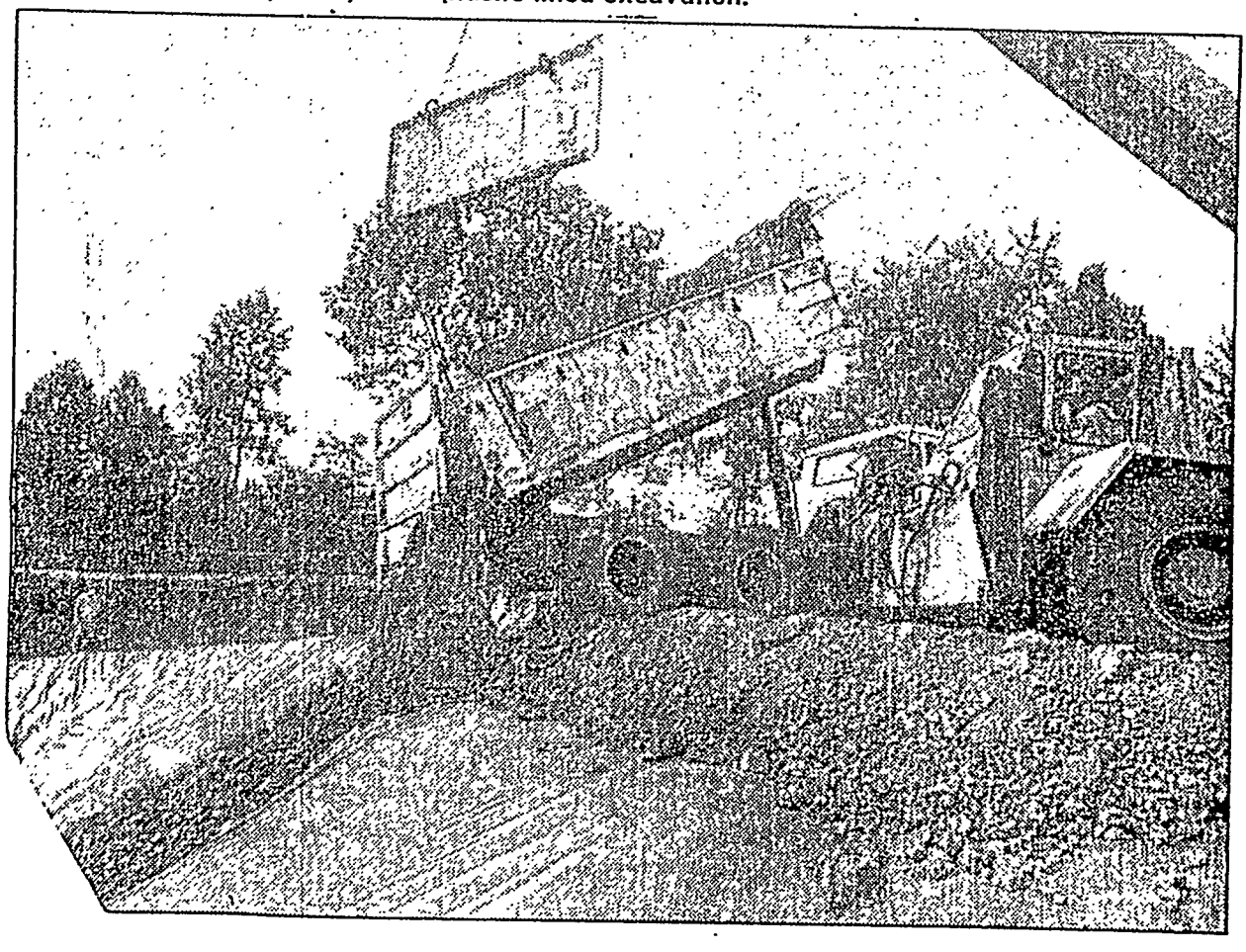
This study is the largest conducted so far by the 18-month-old agency.

"We've got some good assistance by the CDC. They've been holding our hands and guiding our way," Turri said.



The Knoxville Journal/NANINE HARTZENBUSCH

Workers (above) fill up dump trucks with mercury-tainted soil from the Oak Ridge Civic Coliseum property. The dirt is then transported to the Chestnut Ridge dump site at the Y-12 weapons plant, where it is dumped (below) into a plastic-lined excavation.



...are not registered, he said.

DOE begins to remove OR topsoil

orkers take contaminated dirt om outside city civic center

nal State Desk

AK RIDGE — Authorities began removing mer--contaminated soil Tuesday from exercise nds at the Oak Ridge Civic Center downtown, king the first clean-up to occur outside the giant artment of Energy complex.

ulldozer and dump truck operators started scrap-contaminated topsoil in an operation that may tually remove as much as 3,000 cubic yards of cury-laden dirt from the center's grounds and the East Fork Poplar Creek floodplain.

he contaminated soil resulted from massive mer- spills into the creek from the government's nu- weapons plant from 1953 through 1966. Some cury washed up and settled in the floodplain, while tainted creek soil was used as fill dirt in places.

ests showed mercury concentrations in a half-stretch near the civic center reached 400 parts of cury per million parts of soil. State and federal en-mental officials approved a plan a month ago to ve soil where levels registered more than 100

ut before workers had removed the first scoop of aminated dirt, the Department of Energy was re-ng that scientists had found mercury deposits where at levels more than twice the previous high. nergy Department spokesman Wayne Range said Ridge Associated University technicians found ury concentrations of 2,200 ppm in a floodplain s from Bruner's Shopping Center, near Oak e Turnpike and Louisiana Avenue.

ercury levels of 2,000 ppm were discovered be-the Atmospheric Turbulence and Diffusion Labo-y on Illinois Avenue, near East Fork Poplar k.

nge said both areas, overgrown with vegetation, unoccupied and unused. He said a city commit-ormed to deal with the problem would have to e whether the two sites would need "remedial n."

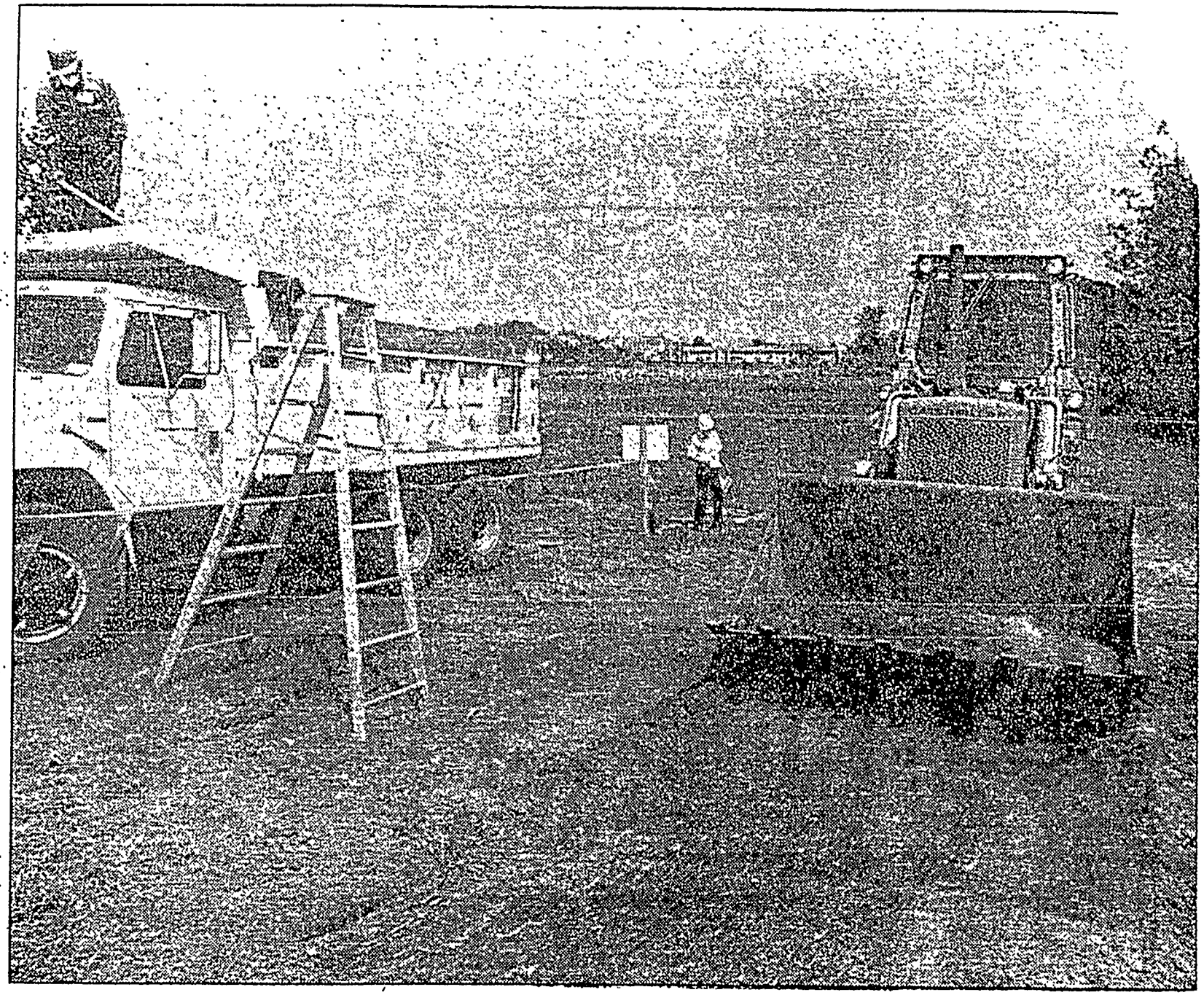
ork at the Civic Center was shortened by rain, e said, and crews plan to return today to the site, ccoon Road and the Oak Ridge Turnpike on the end of the property.

orkers will continue to dredge the ground until gh mercury levels are reduced to under 10 ppm. he said, the agency will spread "clean" dirt and grass seed over once-contaminated areas.

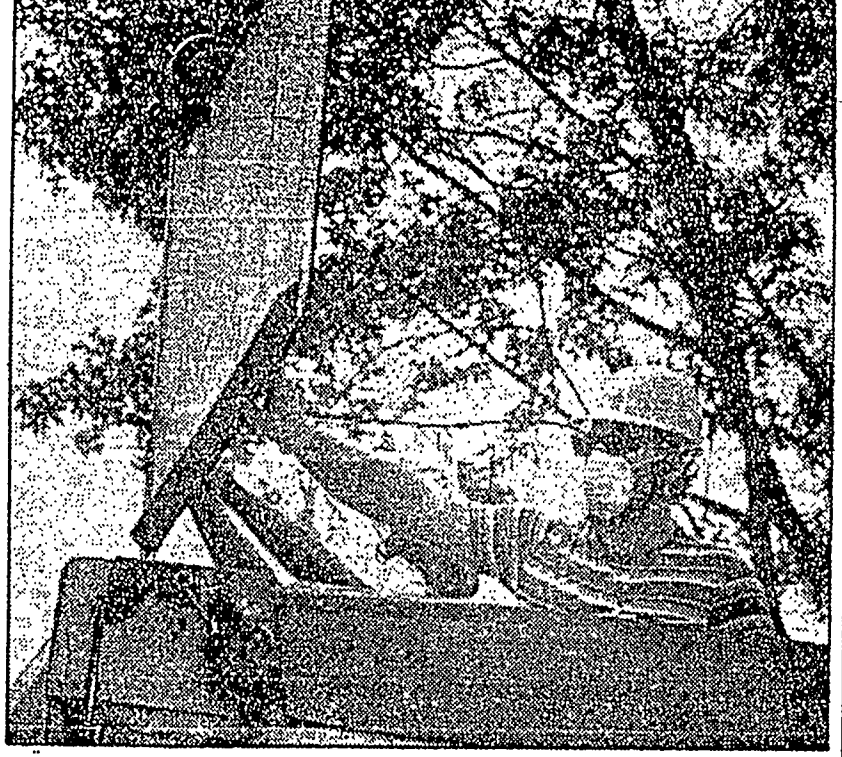
e contaminated dirt will be transported for stor-t the Chestnut Ridge dump site at the Y-12 nu-weapons plant.

e said technicians must solve a problem with dust ions from the cleanup.

nge said DOE officials expect the Civic Center -up will take less than the original six weeks es-e.



The Knoxville Journal/NANINE HARTZENBUSCH



It's a chore to move mercury-tainted soil

With the help of bulldozers and and dumptrucks, workers began removing mercury-contaminated soil from exercise grounds at the Oak Ridge Civic Center last week. As much as 3,000 cubic yards of dirt are expected to be removed in the operation which will last about a month. Top photo: a bulldozer scrapes up the contaminated soil and deposits it in a dump truck, which will transport the soil to the Chestnut Ridge dump site at the Y-12 nuclear weapons plant. Left: A worker ties down the truck cover to prevent dust from escaping. Above: R.F. Grant and an assistant wear protective masks to protect them from breathing mercury dust.

ARE YOUR PAYING TOO MUCH FOR FINE FURNITURE?

High quality, low prices

A poisonous job

Loyal Oak Ridge workers exposed thems

By RANDELL BECK
and TERRY McWILLIAMS
Journal Reporters

Since World War II, the federal government has quietly polluted the environment at Oak Ridge. Lakes and streams have died. Unsafe levels of radioactivity have been found in the groundwater. Not only are residents in Oak Ridge affected, but everyone who may drink the water or use the recreational facilities. How did it happen? How bad is it? What has been done? What's in the future?

The Knoxville Journal today begins a five-part series to deal with those questions and others. It's the culmination of four months of research by reporters Randell Beck and Terry McWilliams, who interviewed dozens of people and poured over thousands of documents to come to the conclusions in this series.

Almost every work day of that grim, Cold War year of 1953, Charlie Robinson and other electricians had one important job.

They had to inspect the many fuse boxes in the dreary three-story building named 9201-2. It was an unpleasant duty. But Robinson, 33, a new employee of Union Carbide Corporation, didn't question it.

It had to be done.

So the electricians would go from box to box, open the steel lid and check the wire connections. The success of the mysterious experiment in building 9201-2, at the secret Y-12 plant, depended on those inspections. Only a few knew why tons of mercury, the elusive, slippery metal used in thermometers, were heated in huge vats.

If you weren't careful, electricians like Robinson were told, vapors from the boiling mercury would penetrate the fuse boxes and short out electricity for the complicated chemical process.

So they checked the boxes. Only now, 30 years later, do men like Robinson grasp the perils of the job.

"When you opened the box," Robinson remembers, "that mercury would just pour out on top of you. It got all over me. They didn't tell me the stuff could hurt you.

"Hell, they never did tell me."

Mercury, workers learned many years later, can damage many organs in the body. It can affect your brain and nervous system. Robinson and other former workers now have difficulty writing their own names. They worry about that.

Today only small quantities of mercury are used in Oak Ridge, where the United States government owns three plants on 37,000 acres of rolling foothills. They are the Y-12 weapons components plant, the Oak Ridge National Laboratory and Oak Ridge Gaseous Diffusion Plant.

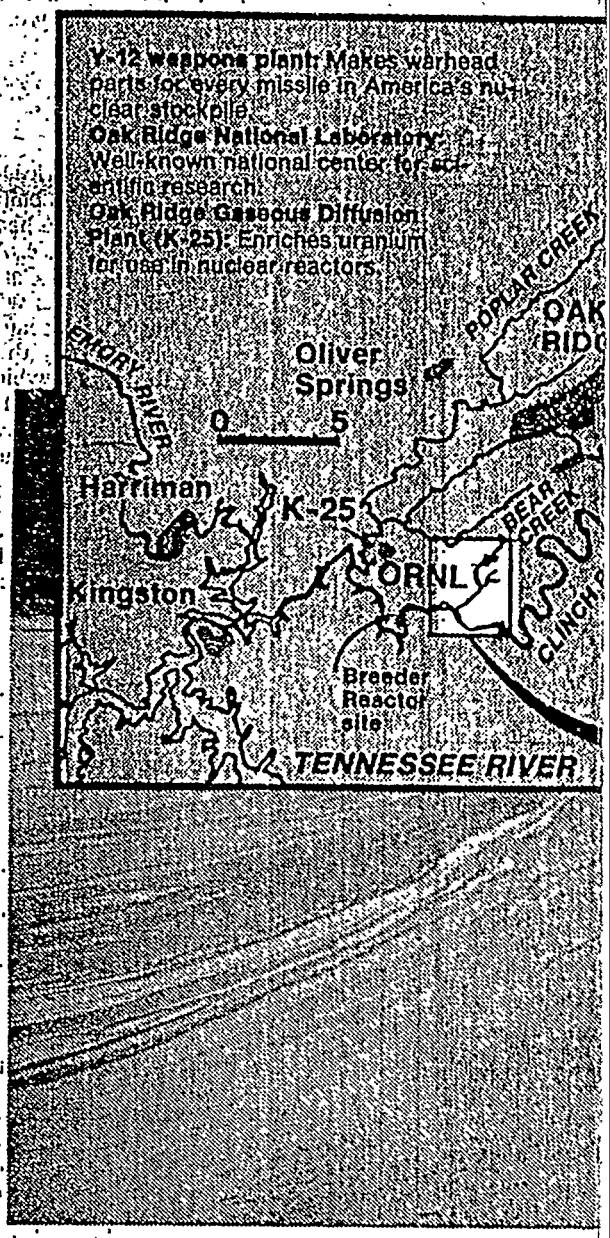
But the government's almost cavalier attitude toward dangerous chemicals, and their effects on people and the environment, has changed very little since 1953. In many ways, the Cold War still rages in Oak Ridge. Lines clearly drawn after World War II — between America and Russia, good and evil — remain clearly drawn today.

Like they did 30 years ago, the plants discharge, dump and bury a variety of hazardous chemicals and radioactive waste. Much like years past, despite efforts of the state of Tennessee, the plants still ignore many laws that regulate the wastes.

And it's all for one big reason: weapons. At any cost, the federal government decided long ago, our stockpile of nuclear weapons would grow. At any cost, those weapons would be built bigger, more powerful.

The cost has been great.

Since World War II, a Knoxville Journal series this week will show, the federal government has:



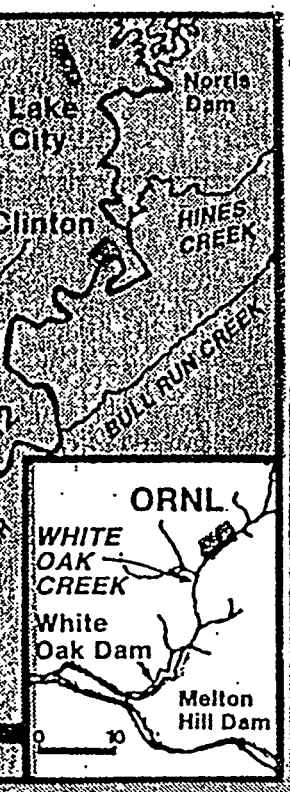
In the early 1950s, the government b

■ Secretly dumped tons of toxic, often-deadly chemicals into Oak Ridge streams. The result: rivers and creeks with contaminated sediment, fish and vegetation.

■ Dumped m
radioactive wast
trenches, contan
underground wa
legacy for genera

Journal 11/28/83

elves without knowing the risk



At any cost

The spoiling of Oak Ridge/Part 1

lt four ponds like this one to hold toxic wastes from the weapons plant.

sive amounts of into poorly dug nating precious r, leaving that ons to come.

■ Threatened the lives of its own employees by exposing them to unsafe levels of chemicals, and forcing those workers to remain quiet about the very substances that still endanger their lives.

■ Ignored federal and state laws that tried to protect the environment, claiming time and again

See Chemicals, Page A3

The Oak Ridger

• 35TH YEAR—NO. 111—482-1021 OAK RIDGE, TENNESSEE, THURSDAY, JUNE 23, 1983 25 CENTS

Attack on researcher's integrity draws ire —

DOE says Scarboro mercury levels lower

By CATHERINE FOSTER

The Department of Energy "hasn't always been a good neighbor in the past, but we're trying to be a good neighbor now," James L. Foutch, DOE attorney, told an audience of about 50 residents of the Scarboro community at a meeting Wednesday night. "We are working with state and federal agencies so that we can be the good neighbor that we ought to be."

The residents had come to Spurgeon Chapel AME Zion Church to hear DOE discuss past problems with mercury releases from the Y-12 Plant — more than two million pounds unaccounted for since 1950 — and plans for cleaning up the environment.

Joe La Grone, manager of DOE's Oak Ridge Operations, again pledged "candor, fairness, and openness" in dealing with the mercury releases.

"Between 1956 and 1966 there was a substantial loss of mercury in conjunction with work at the Y-12 Plant," La Grone said.

La Grone, right, and Councilman E.H. Upton, moderator of the meeting.

ting, La Grone said

which can be a hazard. A small percentage of the mercury of Dr. Revis's samples is methyl mercury, he reported.

Of the soil samples he took, results ranged from 18 ppm in dirt near the Jefferson tennis courts to 63 ppm near New Hope Pond. At New Hope Pond, 0.71 percent of the mercury is methyl mercury, Dr. Revis said.

Dr. Revis's samples were: 18 ppm at the tennis courts; 38 ppm behind the K-Mart; 47 ppm behind the old drive-in theater; 42 ppm 500 yards downstream at New Hope Pond; and 61 ppm and 63 ppm in two samples from New Hope Pond.

Dr. Revis said the guideline he used was an upper limit of 1.0 ppm in soil.

In force-feeding contaminated soil to the laboratory animals, Dr. Revis said he found "no histopathological effects" in any. Histopathology is the study of cell changes. "There was no change in any of the pigeons,

concern by the public." In partial response to that concern, DOE has placed articles and documents on mercury at the Oak Ridge Public Library. "And we can put some more at the Museum or elsewhere if it's needed," he said.

La Grone repeated his intention "to be a personal force in defining this problem and finding its solutions."

DOE has signed the memorandum of understanding with the U.S. Environmental Protection Agency and the state Department of Public Health, La Grone said, and is meeting with officials of those agencies today in Knoxville to begin planning how best to resolve the problem of the mercury losses. Today's meeting is only preliminary, with detailed discussions about the plan to be scheduled later.

La Grone also repeated DOE's request that any resident with concern about mercury contamination call the city manager's office to ask for a free survey. He specifically asked that any resident who believed sediment from East Fork Poplar Creek had been used in their yard or garden call to ask for the testing.

He also unveiled new metal signs that are being placed along the contaminated creek, which was closed to fishing back in November. The new signs are larger, designed for children, and have the "international markings" for no fishing or hun-

tant manager for energy programs, told the group, "There's probably not an area of Oak Ridge where we would find less mercury in the soil or in the water than right here." Bibb explained that testing has shown lower results in the Scarboro area than elsewhere, but added that those results don't necessarily mean that the problem is worse elsewhere.

"Those numbers are so low that I don't think anyone could attach that kind of significance to them," Bibb said. "We're talking about numbers that are less than one part per million. Once you get below that, your sampling accuracy gets worse every day."

Samples that have been taken in the Scarboro community show less than 1.0 parts per billion of mercury in both water and soil samples and in turtle meat.

"And if you think it's easy to catch turtles in East Fork Poplar Creek, I wish you'd come teach us how," Bibb joked.

The water samples showed 0.05 ppb in four separate samples: From 250 feet upstream, near Spellman Avenue; 200 feet west of Dillard Avenue; 300 feet west of Tuskeegee Drive; and 30 feet north or Tusculum Drive.

The soil samples showed:

- 0.40 ppm in soil taken six feet from the creek;
- 0.10 ppm taken 20 feet from the creek;
- 0.15 ppm taken six feet from the creek;

DR. REVIS

BIBB

- 0.80 ppm taken 30 feet from the creek;
- 0.05 ppm taken 10 feet from the creek;
- 0.05 ppm taken 100 feet from the creek;
- 0.85 ppm taken 10 feet from the creek.

Turtle samples showed 0.12 ppm in a turtle from Tuskeegee Creek; 0.058 ppm in another turtle from Tuskeegee Creek; 0.056 ppm from South Hills Pond; and 0.46 ppm from East Fork Poplar Creek behind Winn Dixie.

Other soil samples taken "around the town" show levels as high as 300 ppm in soil along Fairbanks Road near Jefferson Junior High School — fill dirt along the sewer line which had been pulled from East Fork Poplar Creek. A total of 450 cubic yards was taken from the creek for use as fill dirt in sewer construction, Bibb said.

"We haven't had a single positive air sample for mercury," Bibb said, adding that no mercury can be detected anyplace in the air.

Dr. Nathaniel Revis, director of the Oak Ridge Research Institute, reported preliminary results from studies he has done in feeding contaminated soil to pigeons, rats and mice.

"Elemental mercury is not well-absorbed," Dr. Revis told the group, adding that it was elemental mercury that was lost at Y-12. "That's important, and I want to keep repeating that."

Elemental mercury, over the years and with bacterial action, can turn into methyl mercury,

back and added mercuric chloride to the sample. Then we got results showing moderate to severe damage to the tissue."

During questioning following the presentation, Ed Slavin, editor of the Appalachian Observer; and David Stuart, Anderson County attorney, pressed Dr. Revis for details on his grants from DOE, Union Carbide, or other federal agencies. Dr. Revis explained that he had done the study for Union Carbide, and than he had several other study grants on other projects from DOE, EPA and others.

Dr. Revis objected to suggestions that the fact that funding was provided by Union Carbide might have affected his results. "Other government agencies may have an interest," Dr. Revis said, "so what are you going to do then? Universities may have research grants which may give them an interest. There has to be some point in time that you accept that reports are valid results done without bias for the purpose of trying to find out the biological effects of mercury."

When Stuart continued that line of questioning, Bibb interrupted. "I've been [illegible] trying not to [illegible] But I can't let the integrity of this man go [illegible] sent the [illegible] Revis can be bought for the price of a DOE grant. That bothers me. That bothers me greatly."

(Continued on Page [illegible])

The Oak Ridg

35TH YEAR—NO. 110—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, JUNE 22, 19

Principals hear little conce

By CATHERINE FOSTER

With new survey results showing even higher levels of mercury, principals at both Jefferson and Robertsville Junior High Schools still say they've had no telephone calls so far from concerned parents of pupils.

"Our first concern is the safety of the staff and students," said Thomas Hayes, principal at Robertsville, this morning. "We'll do whatever the state tells us to do."

But Hayes, as well as Robert Moss, Jefferson principal, point out that the results from sampling at both schools are so new — and school is out for the summer — so there's been no immediate reaction so far.

Robert Smallridge, Oak Ridge school superintendent, says that the results he's seen so far "are saying to me that we have higher than normal amounts of mercury in the soil. Since there is no federal standard (for mercury concentrations in soil), and I'm not an expert, we'll have to defer to others on what kind of problem we might have and what we should do about it."

Smallridge added that, with school out for the summer, there's time for those experts to

Moss shows the area along the new sewer line construction, where levels of mercury were found.

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n about mercury; fill dirt gets attention

er. "I'm looking forward to ring from those experts.... I nd to know something before ool opens."

esults from monitoring ughout the city are continu- to come in, and Department Energy officials are sifting ugh data this morning in an rt to be better prepared for a eting tonight between DOE ff and residents of the Scar- o community on the mercury ses. That meeting is schedul- for 7:45 p.m. at Spurgeon apel AME Zion Church, 100 uston Ave. Joe La Grone, nager of DOE's Oak Ridge erations, and William R. ob, assistant DOE manager, l be presenting the latest vey results to the group ight, and will answer ques ns.

According to Jim Alexander, DE spokesman, figures now om the area along the rimeter of Jefferson Junior gh School are approaching 300 rts per million of mercury — nsiderably higher than the 40 m reported earlier this week, om preliminary testing.

DOE officials are analyzing e mercury levels in soil, air nd water following the sclosure last month that 2.4 illion pounds of mercury are iaccounted for from operations the Y-12 Plant between 1950 nd 1977.

The high levels at Jefferson are apparently because sediment from East Fork Poplar Creek was used as fill dirt when the new sewer lines were installed; the highest levels of contamination are turning up along the sewer lines.

Smallridge said that, as far as he knows, no creek sediment was used as fill dirt at any other schools during the current sewer line construction.

Randy Lovegrove, with the city public works department, said that sediment from the Poplar Creek bank and even from the creek bed was deposited in front of Jefferson Junior High, but he said he's not sure where else that sediment might have been used in sewer line construction, if indeed it was used elsewhere at all.

The use of sediment in other areas throughout the city has been a concern to DOE officials, who have expressed some worry that residents might have taken some sediment for use as fill dirt in gardens. If any residents have done that, DOE officials ask that they request a mercury soil test by calling the Municipal Building.

Moss said he'd rather not comment on the figures from Jefferson. "I'm just not well-informed enough on the hazards to make any meaningful comment on the survey results," he responded today.

He added that he hadn't seen samplers at his school. "The first I knew of it was seeing a television crew taking shots at the school, and then, of course, I read the story in last night's paper."

The creek running adjacent to Robertsville Junior High School often floods the ballfield.

Oak Ridge Associated Universities, which is doing the survey work for DOE, has been examining dirt samples from near the surface in a variety of areas throughout the city.

The contamination at Robertsville — which reaches only about ten parts per million — is found along the ballfield and the edge of the creek; the contamination apparently from flooding along the Hayes explained that the floods in late winter and spring, during times of rainfall.

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The Oak Ridger

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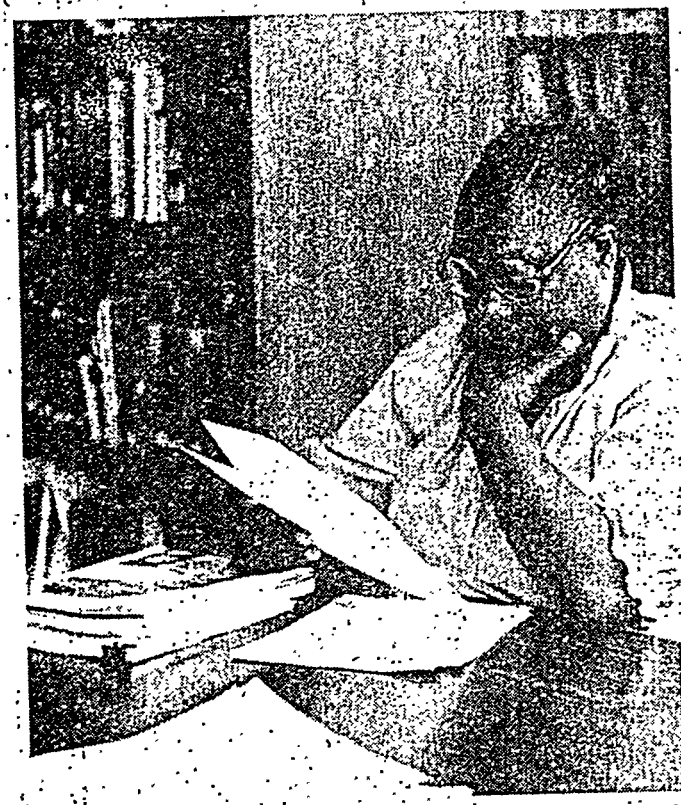

Lavada Chisholm, 201 Dillard Ave., looks through the material on mercury at the Oak Ridge Public Library. Ms. Chisholm said the East Fork of Poplar Creek runs through her property, where she has a vegetable garden.

Mercury con

By CATHERINE FOSTER

Levels of mercury ranging from 0.05 to 40 parts per million have been found in soil at Jefferson and Robertsville Junior High Schools.

The level of 40 parts per million ranks alongside the highest levels the U.S. Geological Survey has ever found in soil, federal stand contamination

The figures, by the Depar were compile for Oak Ri Universities, mercury level wellwater a

Information store

The Department of Energy has provided information about mercury and mercury losses at the Y-12 Plant to the Oak Ridge Public Library.

Dorothy Disney, reference librarian, says that part of the material will remain at the library at all times "as a nucleus of information," but that the remainder could be checked out for a three-day period.

More than two million pounds of mercury is unaccounted for from operations at the Y-12 Plant. The E Creek has be since Novem cury contami

General r provided to t articles on n magazines a Postgraduate and from boo and Toxic E Chemicals," Toxicology."

Mercury-r

• Number 3 ... Mercury — From Page One

methyl form, within two feet of the surface, at high levels, that would be cause for concern, he said.

"The reason that the only federal criteria you're finding are for fish is that's the way the public health is threatened, is through the food chain," Brooks said. "Mercury is insoluble and relatively immobile. It requires bacterial action to become a threat. In addition to the fish, the other danger comes from working in the soil and through vegetables grown in the soil."

Brooks feels strongly, however, that, because of the large amount of mercury unaccounted for, it should be cleaned up. "I'd like to see the mercury cleaned up and removed," he said. "I can't say strongly enough that an amount of mercury that large must be removed from the environment. If we had caused it, I'd still be shouting that we've got to clean it up."

He added, "No organization is guiltless in small amounts (of contaminant releases). But this is not a small amount."

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Poplar Creek.

The largest numbers were found 170 meters from the entrance of Jefferson Junior High School, where 40 parts per million of mercury were measured. Only three meters from the entrance, the level was 2.4 parts per million. At Robertsville, measurements taken at the edge of the creek showed ten parts per million.

Water measurements showed 0.75 parts per billion in the creek behind Robertsville Junior High.

Federal standard for mercury contamination in fish is 1.0 ppb.

In wellwater from two wells on Tuskegee Drive, levels of mercury less than 0.1 parts per billion were found, according to the ORAU analysis.

DOE officials, in releasing the data, decline to provide analysis of the figures. Michael Bruner, assistant commissioner of the state Department of Public Health and Environment, said that he's not sure what the numbers mean. "We're having them analyzed right now, and we hope to have an answer by the end of the week," Bruner said. "Since there's no federal standard, we're just not ready to comment on details in the report now. However, we certainly are pleased that DOE reponded to our request for details, and it shows a real commitment both to the city and to us."

Ralph Brooks, assistant director of the Division of Air and Water Resources for the Tennessee Valley Authority, says the numbers offer no special concern to him. "Just the numbers, by themselves, are meaningless in evaluating the impact," Brooks said. But the total amount of the mercury release over the years — 2.4 million pounds, of which 475,000 pounds is estimated to have been lost in the creek — does concern him.

"Would I take my child out of Jefferson or Robertsville based on these figures? No, I can't say that I would," Brooks said this morning. "The numbers, in a broad range, indicate a significant amount of mercury in the area, but it doesn't indicate any danger."

Brooks said he might become alarmed if the high soil readings were found, for example, on a farm where vegetables were grown or in an area where children play and get dirt on them.

"The fact that mercury is in the enyironment is of concern to me. But I would want to know where, and in what form, before I became too alarmed," Brooks said.

If mercury were found in

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include a copy of the report issued by DOE last month, when the amount of releases from Y-12 was first made public; the material presented to the Oak Ridge City Council on May 23 and to the Chamber of Commerce on June 10; DOE internal memos from 1977 on mercury losses; internal memos from 1977 and 1978 on mercury amounts found in fish; aquatic surveys over the years from Poplar Creek and Bear Creek; environmental monitoring reports from Oak Ridge facilities from 1977 through 1982; and a copy of the memorandum of understanding signed by representatives of DOE, the U.S. Environmental Protection Agency and the state Department of Public Health and Environment concerning complicace with pollution control standards at Y-12.

The material will be available during normal Library hours.

EGLI
'No records were kept.'

Mercury in White Oak C

By CATHERINE FOSTER

Mercury has been found — not for the first time — at yet another creek in Oak Ridge.

A report from Oak Ridge National Laboratory completed on Tuesday shows that levels up to .7 parts per million of mercury have been found in fish in White Oak Creek, which runs through the ORNL grounds.

The report follows the revelation last month that 2.4 million pounds of mercury has been lost to the environment over the past 30 years at the Y-12 Plant — a revelation that has sparked a congressional investigation.

On the White Oak mercury levels, Richard Egli, deputy assistant manager for energy research and development at the Department of Energy, explained this morning that sampling has been continuing in White Oak Creek and White Oak Lake, as it has for several years, and that mercury levels did appear in fish, in the water, and in sediment from along the creek.

Egli said that the first time mercury has shown up in the creek was in 1979, and there's no indication that the mercury levels have increased in the most recent sample.

All of this area, Egli said, is "inside the fence," part of the DOE reservation. "The purpose of White Oak Creek and White Oak Lake is to serve as a means to hold pollution," explained DOE spokesman Jim Ale "We would of course e find mercury levels creek."

Three separate build ORNL have housed me one time, Egli said, traces of mercury found Oak Creek apparently from one or more o sources. White Oak Cre through the ORNL groun

At Building 4501, abou pounds of mercury was about six months during the operation of a sm plant for lithium separa support of weapons res the Y-12 Plant, Egli said did have spills," Egli sa records were kept to s

The Oak Ridger

35TH YEAR--NO. 95—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, JUNE 1, 1983 25 CENTS

eek too but not over previous levels

der. volume of the spills, but the best guesstimate, from persons who worked there, is that about 1000 pounds was lost. During a spill, the visible mercury was cleaned up, but the concrete floor had cracks, and the mercury was apparently lost that way."

In Building 3592, "supporting equipment development work" in support of the research in Building 4501 was done, Egli said. During 1956, over a period of about two months, more than 60,000 pounds of mercury was used. "One spill ran out of the building onto the ground," Egli said, but there is no estimate of the amount of losses.

In Building 3503, as part of a research and development project on spent fuel reprocessing, known as Metalex, about 2000 pounds of mercury was used during the early 1960s. "I don't know how long that project operated, but the remaining mercury was shipped back to Y-12 when it was over, I think by the late 1960s."

Again, no information exists on the amount of possible losses.

The traces of mercury in the creek have been routinely reported in the annual environmental statement issued for ORNL.

Asked if any mercury was ever used at Oak Ridge Gaseous Diffusion Plant, DOE spokesman Wayne Range said, "We have reason to believe that some mercury work was done at ORGDP. If we find that indeed it was, additional testing and monitoring will be done."

Range added that monitoring has been done for years in the Clinch River, both above and below ORGDP.

In another development, DOE has met the first of its deadlines set by the memorandum of understanding reached among DOE, the U.S. Environmental Protection Agency and the state Department of Public Health.

The agreement is designed to lead to the cleanup of environmental problems caused by the loss of mercury from Y-12, where a total of 2.4 million pounds has been lost into the environment over the past 30 years. Mercury traces have been found in fish in East Fork Poplar Creek, which has been closed to fishing since last November.

As part of the agreement, DOE has signed a contract with Law Engineering Co. of Atlanta to "investigate the hydrologic characteristics of the Bear Creek Valley disposal areas (isolation area, disposal pits, oil pond and trenches and oil landfarm), the S-3 (disposal) ponds and the New Hope Pond sludge disposal basin."

The purpose of the study is to evaluate the groundwater flow, monitoring data and the ade-

(Continued on Page 7 No. 1)

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A rare first day of June, in-
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• Number 1

Mercury

— From Page One

quacy of the existing Y-12 groundwater monitoring program.

DOE has also told the state health department of its plans to drill around eight facilities at Y-12 where substantial quantities of mercury were handled and where major spills occurred, to see if mercury remains in the ground and if it can be recovered. In addition, wells will be monitored for possible mercury contamination.

Mercury Spills Near Weapon Plant Prompt Dispute in Oak Ridge, Tenn

By RONALD SMOTHERS
Special to The New York Times

OAK RIDGE, Tenn., May 21 — "It's a miracle city," said Mayor Alvin K. Bissell.

"It's an aberration," said Steve Gough.

It is not surprising that the two men hold contrasting views of this town, which was started from scratch in 1943 and run for many years by the Federal Government as a weapons research and parts production facility. Partly as a result of Mr. Gough's suspicions and his surreptitious tests, Mr. Bissell's "miracle city" in the Cumberland foothills has become the center of a controversy over huge mercury spills.

Mayor Bissell, 71 years old, has held office for the last 25 years and was one of Oak Ridge's original settlers. A good-humored and tireless town booster, he is not alone in extolling it as a mecca of "good" science, patriotism and the good life. He and many other residents take pride in the complex's role in making the atomic bomb in World War II, and in its current task of uranium enrichment, energy research and fabrication of some parts for weapons, such as the MX or cruise missile.

Town With a Mission

"It just erupted, rose up out of farmland, and it was a one-industry town with a mission," said the Mayor. "And it succeeded in that mission."

Mr. Gough, a 32-year-old research biologist on the other hand, had until last year lived in Oak Ridge for six years and worked for Union Carbide, which operates the complex's research laboratory and its two sprawling manufacturing facilities. In 1981 he secretly took samples of water and plant life from the East Fork Poplar Creek near the Oak Ridge complex's Y-12 plant, had them analyzed and found high concentrations of mercury.

Mr. Gough, who was part of a Union Carbide environmental monitoring team at the uranium enrichment plant on the property's western part, suspected there was contamination from the Y-12 plant, which made weapons components, on the far eastern part. This area was not being monitored to the his knowledge.

Mr. Gough reported his findings and subsequently complained to the Department of Energy that Federal officials at Oak Ridge had done nothing about them. Afterward, he said, he suffered a "subtle kind of ostracism" in the city and eventually left.

The New York Times/May 26, 1983

Mercury report distresses those who fish for sport in Oak Ridge.

Peer Pressured Cited

"It is an intellectual ghetto, an aberration in which there is enormous peer pressure to conform," said Mr. Gough, now a computer software specialist with a military contractor in Fredericksburg, Va. "There is a definite feeling there that whatever is done is sanctioned — it's O.K., it's good science."

Mr. Gough's work and subsequent investigations by the Tennessee Department of Health and Environment led to disclosures last week that from 1954 to the present there had been unpermitted discharges or unreported spills of up to 2.4 million pounds of mercury at the Y-12 plant.

Barry Sulkin, an investigator for the state agency, said that tests on bluegill fish showed higher mercury content than permitted by Food and Drug Administration standards as well as high concentrations of mercury in sediments and grass. Since then, two Congressman from the area have scheduled hearings next month on the mercury spills, the Department of Energy has announced an inquiry into charges of a coverup of the spills, and the Environmental Protection Agency and state agencies have further delayed action on renewing the facility's license to discharge waste into the creek.

"At this point I consider it an env mental problem and not necessar health problem," said Mr. Sulkin. I think its just the tip of the icebe problems here."

"The rest of the problem is what pened to radioactive wastes and P that they have used and what the doing today," he said, referring to chlorinated biphenyls.

Absorption of Mercury

Solid mercury, either dissolve water or locked in sediment, is easily absorbed by fish or humans the action of anaerobic bacteria in water, sediments, fish or hur creates methylmercury, which is e absorbed. Methylmercury in l doses can cause nausea, vomiting, ney damage, loss of memory, slu of speech and brain damage.

Little is known about how solid cury moves through waterways. A study by the Virginia State Water trol Boa.d of mercury discharges i Holston River showed methylmer levels in fish and water increasin years after the mercury discha stopped and as far as 75 miles dow river from the original source.

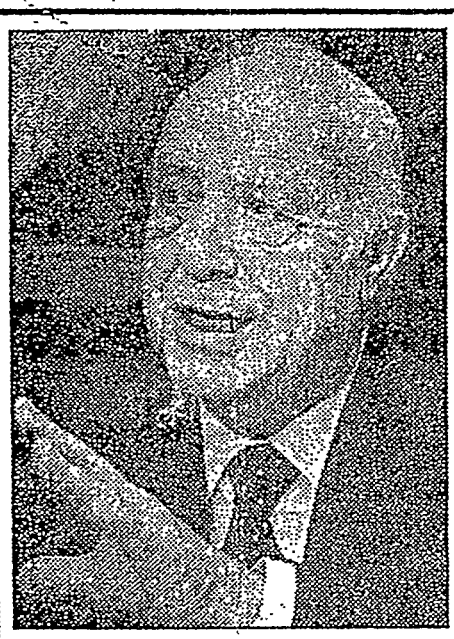
Dr. William R. Bibb, the Departm of Energy's director of energy grams at Oak Ridge, said the mer discharges and spills were linked lithium separation process at the plant that was in use from 1953 to 19

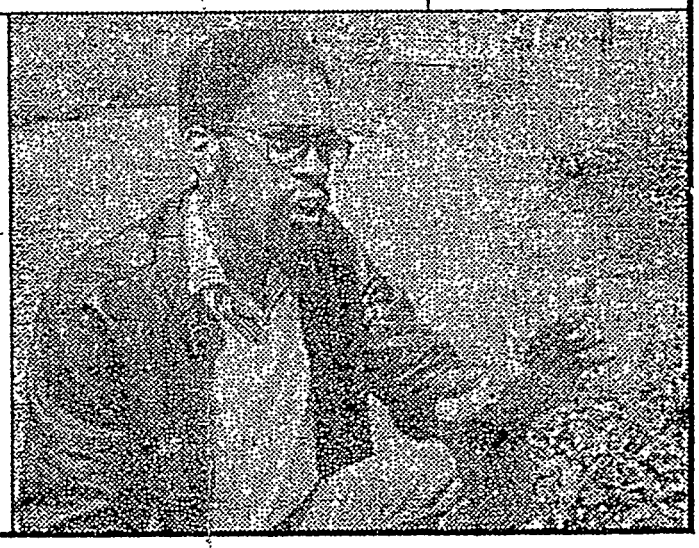
But he said that their own stu showed no more than 500,000 poun the metal went directly into East Poplar Creek. An estimated 1.9 mi pounds that was discharged or spi he said, seeped into the deep fissur the layers of clay, limestone and s under the 93-square-mile complex remains trapped there.

Dispute on Contamination

There was little likelihood, he sai contamination to drinking water cause the city's water supply is dr upstream of the plant. As for the taminated fish, a report by official the facility suggested that since Ridge was a "relatively affluent cit East Tennessee, populated by scien and engineers who have other life suits than habitual sports fishing, seemed unlikely there would be a p lem from fish consumption.

The New York Times/Michael Patrick





Barry Sulkin, far left, investigator for the Tennessee Department of Health, says fish caught in Oak Ridge, Tenn., show a high content of mercury. Mayor Alvin K. Bissell, left, would prefer to have all facts at hand before assigning blame. Jimmy Fuzzell 2d, below, a resident, says he swam in the local creek and ate fish caught there.

Jimmy Fuzzell 2d disagrees. He is one of about 1,500 blacks in the Scarboro, a community along the East Fork Poplar Creek about 100 yards from the fence around the complex and barely two miles from the Y-12 plant. Scarboro was also built by the Government and laid out with such street names as Tuskegee, Bethune and Carver.

Standing on the banks of the creek, the 33-year-old Mr. Fuzzell talked of how as a child and as an adult he and others ate the small smeltlike bluegill, as well as turtles taken from the creek. He remembers swimming in it and swallowing a lot of water, he said.

With high unemployment among blacks in the city, there was more fishing there until recently, he said. He said the report's comment about the paucity of fishing in the creek struck him as typical of the attitudes in Oak Ridge.

'Needs of the Elite'

"This town is structured around the needs of the elite and no one else," he said.

A neighbor, E. L. Henderson, who works at the complex, said that he, too, swam and fished in the creek as a child but that he was not worried about the reports on contamination.

"Some people say that this is because they want to close Oak Ridge down, and the employees are worried about that," said the 30-year-old Mr. Henderson. "I'm not worried about the mercury, but I would worry about it less if they stopped writing about it."

Mayor Bissell said that most Oak Ridgers had not mentioned the reports of mercury spills to him and that he suspected this was because, being people of science, they are reasonable people who wait to hear all the facts and believe all things are solvable.

"We believe here that the dumber you are, the better critic you make," said the Mayor.

The Oak Ridger

35TH YEAR—NO. 87—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, MAY 20, 1983 25 CENTS

Cost of lost mercury totalled $7.2 million

By CATHERINE FOSTER

At $3 a pound — the price then nd now — the mercury loss at ne Y-12 Plant represents a $7.2 illion loss to the Department of nergy, DOE officials said to- ay.

DOE reported Tuesday in a ecently-declassified 1977 report nat approximately 2.4 million ounds of mercury has been lost t Y-12 since 1950. The mercury ad been part of a classified thium separation process hich was discontinued in 1963.

"These are considered to be rocess losses," said Jim Alex- nder, DOE spokesman. "Any rocess involves a loss, and you ust write that off as a cost of do- ng business. It was in our ustody, our personnel handled , and it's our responsibility."

The unaccounted-for mercury s mostly believed to be trapped nderground, DOE officials say, ith the remainder released into oplar Creek and into the air.

The spilled mercury, ac- ording to Gabriel Marciante of OE's environmental division, as in the elemental form — the eavy liquid familiar to most of s from thermometers and blood ressure monitors. The heavy etal is liquid "at ambient emperatures," Marciante said, stored in 76-pound stainless steel flasks that resemble scuba div- ing tanks. A gallon of mercury weighs 112 pounds, meaning that one of the tanks holds less than a gallon.

The total loss over the years totals 21,428.58 gallons lost into the ground, creek and air.

Marciante explained that the mercury, bought in its elemen- tal, or most widely seen, form, was lost as the silvery-white li- quid metal. But, over the years, some of that elemental mercury can be converted to methyl mer- cury, Marciante said. "Methyl mercury is one atom of carbon, three atoms of hydrogen and one atom of mercury," Marciante said. "Methyl mercury is form- ed through the biological action on a small scale in aquatic systems. What happens is, microscopic organisms, under the right conditions, will take the mercury into their bodies" and produce methyl mercury.

This form of mercury then is ingested by fish, and mercury levels can be measured there.

According to William R. Bibb, director of DOE's Energy Pro- grams and Support Division, ac- cording to DOE's samples less than one percent of the mercury that has been found is methyl mercury. "In some samples, it has been less than 0.1 percent," Bibb said. "So a very small por- tion (of the mercury) in the Oak Ridge environment is methyl mercury."

Mercury itself, of course, is us- ed in many ways, such as in Mer- curochrome, in wetting solutions for contact lenses and in fillings for teeth. But the methyl mer- cury form does cause concern, because it has been linked to il- lnesses.

Marciante emphasized, "We didn't discharge any methyl mercury," but agreed that "over long periods of time, through biological action, some elemental mercury is changed slowly into methyl mercury."

The mercury — in whatever form — cannot be seen in the creek without a microscope, Marciante said. According to Bibb, fish sampled in Poplar Creek outside the DOE reserva- tion have had mercury levels of .56 parts per million (in bluegill); .53 ppm (in carp); .18 ppm (in crappie); and .20 ppm (in bass). The levels in the crap- pie and bass, although much lower, are the ones that concern DOE officials most, because both are popular for eating.

Fish sampled near the Y-12 plant itself have shown levels as high as 2.13 ppm, Bibb said.

The Food and Drug Ad- ministration sets a limit of 1 ppm as acceptable.

Meanwhile, two congressional subcommittees are planning on holding hearings in Oak Ridge on the mercury releases and the delay by DOE in revealing the results of sampling. Those hear- ings, before the Subcommittee on Investigations and Oversight, chaired by Rep. Albert Gore Jr., and the Subcommittee on Energy Research and Produc- tion, chaired by Rep. Marilyn Lloyd, are tentatively scheduled for June 27.

And the biologist formerly with Oak Ridge National Laboratory, who says his unauthorized sampling led to the official sampling, charges that the official sampling was done

(Continued on Page 8 No. 10)

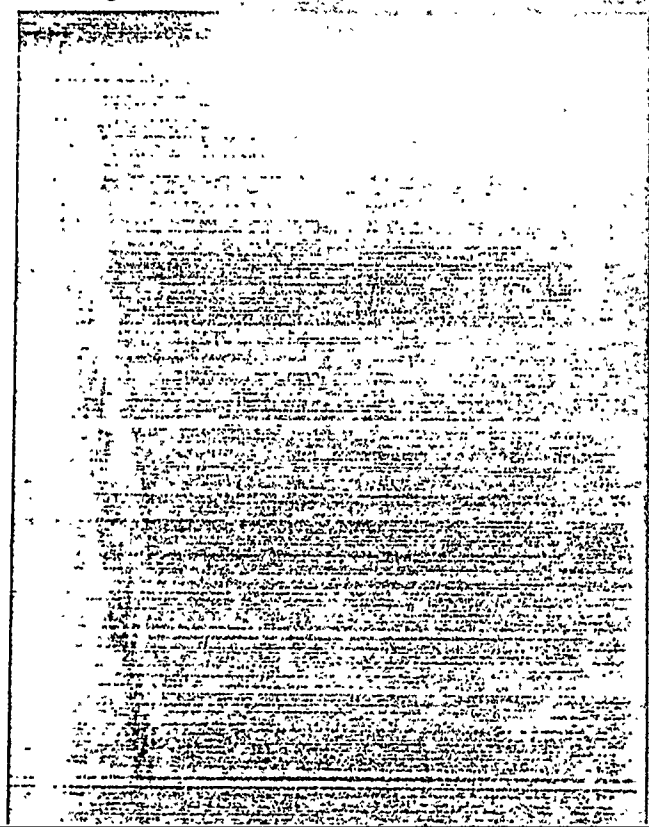
defense contractor, said he was asked to keep quiet about his creek samplings, which he performed in December 1981 with his brother, Larry.

"They hoped to gain enough information to put the problem in perspective for themselves. Then they hoped it wouldn't get out. There were words to the ef- fect that I should not give out in- formation. There were words to my brother to that effect," Steve Gough said.

Gough and his brother, Larry Gough, a geochemist with the U.S. Geological Survey, took their samples in hopes of developing a proposal to study heavy metals in the creek.

"We weren't out to cause pro- blems. We were out to solve pro- blems," Steve Gough said. He said mosses and liverworts growing beside the creek were analyzed at Larry Gough's USGS lab in Denver and showed heavy concentrations of mer- cury.

But after Steve Gough's superiors found out about the unauthorized sampling in early 1982, he said, "I left voluntarily. I felt a firing

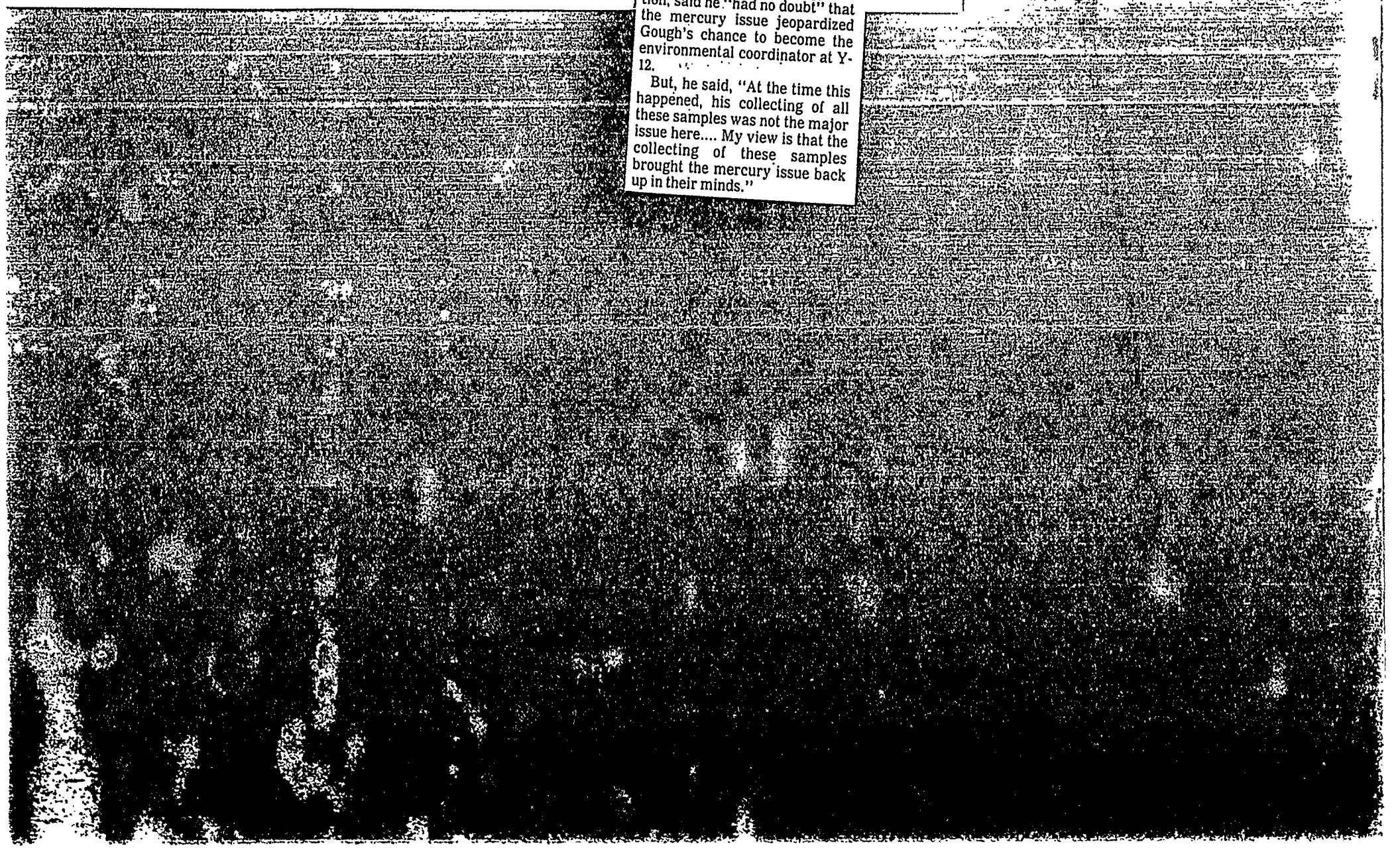


mercury work."

Although the mercury came from Y-12, Gough said no security problems were involved. "The fact that the mercury was in the creek ... is not a sensitive issue from a national security standpoint. It is sensitive only bureaucratically, politically," Gough said.

Webster Van Winkle, head of the ORNL's aquatic ecology section, said he "had no doubt" that the mercury issue jeopardized Gough's chance to become the environmental coordinator at Y-12.

But, he said, "At the time this happened, his collecting of all these samples was not the major issue here.... My view is that the collecting of these samples brought the mercury issue back up in their minds."



Swafford in his office in the Commerce Building.

DOE's new office —

Behind mercu

By CATHERINE FOSTER

Recent news stories on two events affecting Oak Ridge have seemed very different, but have one thing in common.

The stories are the revelation that 2.4 million pounds of mercury are unaccounted for at the Y-12 Plant and the charge that Science Applications, Inc., had used material and personnel at the American Museum for Science and Energy for corporate gain.

The thing in common is that representatives of the Department of Energy's Inspector General's Office have been investigating both. In the case of the mercury losses, the Inspector General is examining whether or not a deliberate cover-up of records was involved in the classifying of a 1977 report detailing the losses. That report was declassified in May. In the case of SAI, the Inspector General's office is examining whether or not some fraud or theft was involved i Museum personnel ment in the constru hibits for SAI's co fices.

So who are these g

The Inspector Gen has been a part of D Ridge since 1982, establishment of a regional office here. tor General's Office as a part of DOE n 1977 to "promote ec efficiency and prev waste and mismar according to the legislation.

Directing the offi James W. Swafford, native who has wor variety of federal ag the years. The office i the Commerce Build corner of Georgia A Broadway.

While Swafford discuss any of the General's current tions, including both

The Oak Ridger

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curlosses and the SAI case, he did agree to discuss the office itself and its role in the agency. He's especially pleased that his office pays for itself. "For every dollar the Inspector General's office spends, we save $7," he says.

Cases are brought to the Inspector General's attention, Swafford said, in a variety of ways, but the most frequent is through telephone calls or letters from employes aware of some aberration in the conduct of government business.

"We're required to follow up on each report we receive," Swafford explained. "We pursue the case, then can close it if it leads nowhere, can turn it over to DOE management for correction, or we can turn it over and work with the district attorney or the FBI for prosecution."

The Inspector General's office also has a cadre of technical experts who can examine engineering drawings and the like if necessary, Swafford said.

The Inspector General's office does "performance evaluations" of continuing programs to make sure the government is getting its money's worth, he added.

Every large contract and a "sampling" of smaller ones are examined, he said.

"We get many, many allegations," Swafford said. "You name it, we get them."

Another example of the type of work the office does is audits, which are often done in conjunction with other forms of investigation, such as occurred in the SAI case.

Describing the way a typical case is handled, Swafford said, "First, we get a call from an individual that a contractor is charging us for work improperly, for example. Then we gather all the information we can, pull all the records, interview some of the people involved. By then, we should know if there's something to it (the charge) or there isn't. If so, we refer the case to the FBI or the district attorney.... DOE management has no role in determining whether or not somebody is criminally prosecuted. If there is no prosecution, then they take administrative action. That can be pretty effective."

At any time during an investigation, DOE can take administrative action, Swafford said. "We stress, if it's not prosecuted, that some form of administrative action be taken."

Most of the reports begin with a telephone call, Swafford said. "Sometimes it takes people two or three phone calls to get down to what they want to say. It's not so much a fear of being fired as of feeling like they're carrying stories."

Swafford says he's pleased by the decision of Joe La Grone, DOE manager, to order the reprimand rescinded that had been attached to the record of Steve Gough. Gough is the former Oak Ridge National Laboratory researcher who took unofficial samples along East Fork Poplar Creek which have been credited with sparking the investigation that led to the closing of the creek to fishing and swimming.

La Grone's decision will probably help bring other potential "whistleblowers" forward, Swafford said. "If people can see that management protects people who come forward, we'll get more information — and our best source of information is people."

Swafford, an auditing and management specialist, brings to his new position with DOE some 25 years of federal service with the U.S. Army, the Department of Defense, the State Department and DOE. He has traveled extensively in the U.S. and more than 20 foreign countries in connection with his assignments. But now, he grins, it's time to settle down back home.

The Oak Ridge

35TH YEAR—NO. 165—482-1021 OAK RIDGE, TENNESSEE, WEDNESDAY, SEPTEMBER 7, 1983 25 CE

Oak Ridge Operations and environs — 4

Report ties Oak Ridge's 'ec

Editor's note — What information does the Department of Energy provide about the environmental impact of its operations? The information is contained in three major "environmental assessments" published by DOE in recent years. This fourth part of a ten-part series looks the environmental impact Y-12 has created.

By CATHERINE FOSTER

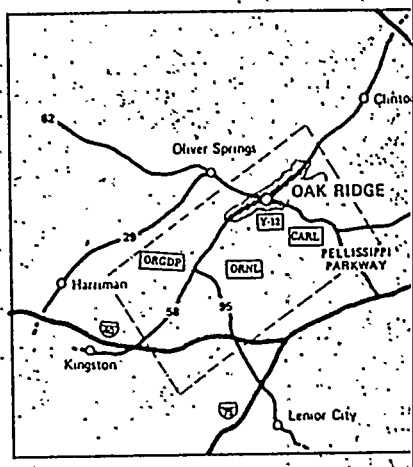
The "economic viability" of the city of Oak Ridge and both Anderson and Roane County "will continue to depend upon the employment and income generated from the operations of the Y-12 Plant," according to the environmental assessment of the plant.

The report examines several options for the plant, like shutting it down — not a viable option, because of the need for weapons — or moving it elsewhere — which would just move any problems somewhere else.

So the best option, the report concludes, is to continue operation of the plant here at present levels.

That means, depending on federal budget levels, about 6200 persons at work at Y-12, earning about $110 million yearly in payroll.

About 57 percent of those employes live in either Anderson or Roane County. "The city of Oak Ridge alone received a payroll of over $35 million for the 29 percent of the plant employes who resided in the city" during 1978, the most recent year cited in the report.



"The Y-12 Plant at Oak Ridge plays a significant role in the socioeconomic activities of the as ne the r the (men

• Number 1

Environs

— From Page One

But the effects of the plant on land, water and air are not irreversible or irretrievable, according to the report, with the exception of "those tracts associated with holding ponds and burial grounds, especially burial grounds for radioactive materials." And even these areas might be recoverable if "the overfill of these areas is deep enough."

Next — Oak Ridge Gaseous Diffusion Plant.

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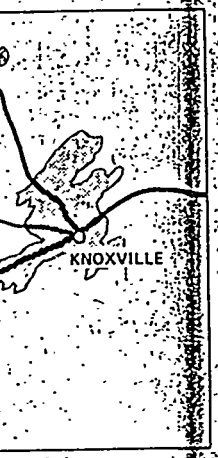

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boring communities,"
rt says. "It is not only
ct' effects of employ-
nd earnings that need

to be examined but also the indirect effects through the multipliers that make themselves felt on other industries, such as sales, services, retail and wholesale trades, as well as financial institutions," the report says.

But, obviously, there are more impacts from the operation of an enormous plant like Y-12 than just the payroll and its residual effects.

One large impact felt in the community from Y-12 is on the water systems in the city — an impact that has been often debated during recent months, following the disclosure by the Department of Energy that 2.4 million pounds of mercury is unaccounted for from operations at Y-12. Part of that mercury — slightly less than half a million pounds — was dumped into East Fork Poplar Creek.

"The quality of the water in Bear Creek and East Fork Poplar Creek from Y-12 operations should improve in coming years due to projects which are in progress or which are proposed," the report says. One project would "provide for the neutralization, precipitation, settling and filtration of aqueous waste streams" generated at Y-12.

Another project would treat the runoff from the coal pile, which would also help improve water quality, the report says.

Other impacts are minimal, the report suggests.

For example, data on the uranium and fluoride content in vegetation show levels well below concern standards. And now that Y-12 has switched to low sulfur coal for its steam plant, sulfur dioxide releases into the atmosphere now conform to existing standards, the report says.

"However, unless particulate emissions are reduced, the surrounding vegetation will suffer negative impacts though perhaps difficult to measure, if at all," the report says. "Theoretically, particulates could decrease the rate of photosynthesis due to foliar deposition; and as a consequence, the plants could experience reduced growth. However, no studies to date verify this phenomena."

The "unavoidable adverse effects on biota" are "the hazards to many animals on the reservation from the traffic on the roads; the lead from automobile emissions which may accumulate in plants growing near highways, creating a hazard to herbivorous animals; and selective timber harvest which has changed the nature of the original forest."

The impacts on the streams are, of course, known because of past practices which resulted in the loss of mercury and PCBs. "The absence of many sensitive organisms and the abundance of pollution-tolerant species indicate degraded water quality," and these effects are expected to "persist for many years."

(Continued on Page 7 No. 1)

Wednesday

May 18, 1983

Knoxville, Tenn.
Volume 118, Number 118

The Knoxvill

Our 144th year ☆ ☆ ☆ ☆ ☆

Toxic mercury sa

By TERRY McWILLIAMS
Journal State Reporter

OAK RIDGE — Highly-toxic levels of mercury saturated the Oak Ridge area for more than a decade, Department of Energy officials revealed in a once-secret report released Tuesday.

An estimated 2.4 million pounds leaked into the ground and air before the spills could be controlled. The leaks developed at the Y-12 nuclear weapons plant and most major leaks were ended by 1977, although small amounts have continued since then.

Despite the releases into the environment, a DOE spokesman said the mercury does not pose any hazard to area residents. The state posted signs Nov. 1 warning against eating fish from a creek in Oak Ridge.

The report, declassified Tuesday after requests from state environmental officials, details the metal's release from the Y-12 weapons plant into the air, onto the ground and into East Fork Poplar Creek, which winds through Oak Ridge and eventually drains into the Clinch River.

Of the 2.4 million pounds missing, processing losses or spills at the Union Carbide-operated plant accounted for as much as 1.9 million pounds, which DOE officials believe are trapped in underground geological formations.

Another 30,000 pounds of mercury vaporized into the air, the report said, while a total of 475,000 pounds drained into the creek.

The mercury was used to process lithium, one of the lightest metals known, to help produce nuclear weapons from 1950 through 1963. The plant used a different process after 1963, according to the June 1977 report.

Release of the report brought reaction from at least two members of Tennessee's Congressional delegation, while officials at the State Department of Public Health and the Environmental Protection Agency declined to elaborate on the significance of the report until further study could be conducted.

U.S. Sen. James Sasser and Rep. Marilyn Lloyd each asked the EPA to investigate the extent of mercury contamination around the Oak Ridge area and determine where the lost mercury may have gone.

In addition, state Water Quality officials called in a newly formed State Division of Environmental Epidemiology Tuesday to research the issue and determine how toxic the mercury spills may be to the public.

"This is a much larger figure than we've ever been told," said State Water Quality Specialist Barry Sulkin.

See Mercury, Page A12

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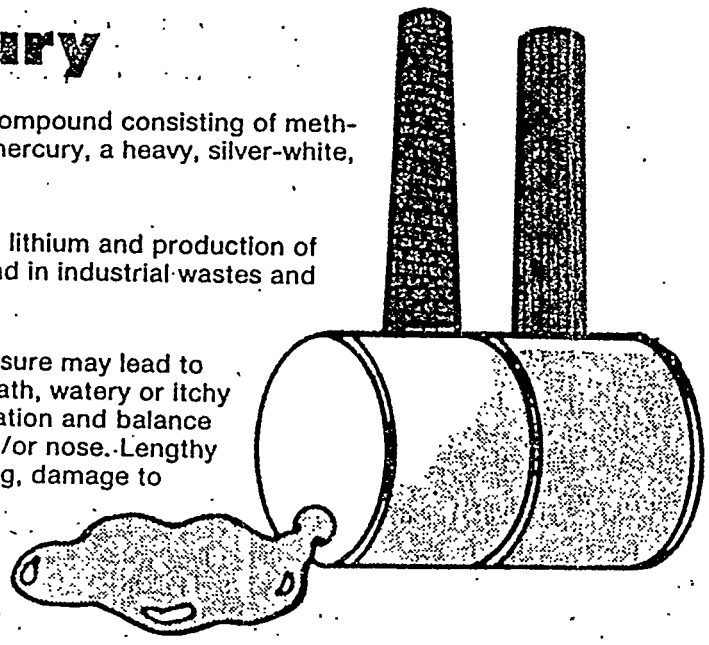

k on researcher's integrity draws ire —

DOE says Scarboro mercury levels lower

By CATHERINE FOSTER

The Department of Energy "hasn't always been a good neighbor in the past, but we're trying to be a good neighbor now," James L. Foutch, DOE attorney, told an audience of about 50 residents of the Scarboro community at a meeting Wednesday night. "We are working with state and federal agencies so that we can be the good neighbor that we ought to be."

The residents had come to Spurgeon Chapel AME Zion Church to hear DOE discuss past problems with mercury releases from the Y-12 Plant — more than two million pounds unaccounted for since 1950 — and plans for cleaning up the environment.

Joe La Grone, manager of DOE's Oak Ridge Operations, again pledged "candor, fairness, and openness" in dealing with the mercury releases.

"Between 1956 and 1966 there was a substantial loss of mercury in conjunction with work at the Y-12 Plant," La Grone said. "This announcement has raised concern by the public." In partial response to that concern, DOE has placed articles and documents on mercury at the Oak Ridge Public Library. "And we can put some more at the Museum or elsewhere if it's needed," he said.

La Grone repeated his intention "to be a personal force in defining this problem and finding its solutions."

DOE has signed the memorandum of understanding with the U.S. Environmental Protection Agency and the state Department of Public Health, La Grone said, and is meeting with officials of those agencies today in Knoxville to begin planning how best to resolve the problem of the mercury losses. Today's

La Grone, right, and Councilman E.H. Upton, moderator of the meeting.

ting, La Grone said.

William R. Bibb, DOE's assistant manager for energy programs, told the group, "There's probably not an area of Oak Ridge where we would find less mercury in the soil or in the water than right here." Bibb explained that testing has shown lower results in the Scarboro area than elsewhere, but added that those results don't necessarily mean that the problem is worse elsewhere.

"Those numbers are so low that I don't think anyone could attach that kind of significance to them," Bibb said. "We're talking about numbers that are less than one part per million. Once you get below that, your sampling accuracy gets worse every day."

DR. REVIS

BIBB

Samples that have been taken

• 0.80 ppm taken 30 feet from

cubic yards was taken from the

which can be a hazard. A small percentage of the mercury of Dr. Revis's samples is methyl mercury, he reported.

Of the soil samples he took, results ranged from 18 ppm in dirt near the Jefferson tennis courts to 63 ppm near New Hope Pond. At New Hope Pond, 0.71 percent of the mercury is methyl mercury, Dr. Revis said.

Dr. Revis's samples were: 18 ppm at the tennis courts; 38 ppm behind the K-Mart; 47 ppm behind the old drive-in theater; 42 ppm 500 yards downstream at New Hope Pond; and 61 ppm and 63 ppm in two samples from New Hope Pond.

Dr. Revis said the guideline he used was an upper limit of 1.0 ppm in soil.

In force-feeding contaminated soil to the laboratory animals, Dr. Revis said he found "no histopathological effects" in any. Histopathology is the study of cell changes. "There was no change in any of the pigeons, rats or mice," he said. So, to test his sampling methods, he "went back and added mercuric chloride to the sample. Then we got results showing moderate to severe damage to the tissue."

During questioning following the presentation, Ed Slavin, editor of the Appalachian Observer, and David Stuart, Anderson County attorney, pressed Dr. Revis for details on his grants from DOE, Union Carbide or other federal agencies. Dr. Revis explained that he had done the study for Union Carbide, and than he had several other study grants on other projects from DOE, EPA and others.

Dr. Revis objected to suggestions that the fact that funding was provided by Union Carbide might have affected his results.

with detailed discussions about the plan to be scheduled later.

La Grone also repeated DOE's request that any resident with concern about mercury contamination call the city manager's office to ask for a free survey. He specifically asked that any resident who believed sediment from East Fork Poplar Creek had been used in their yard or garden call to ask for the testing.

He also unveiled new metal signs that are being placed along the contaminated creek, which was closed to fishing back in November. The new signs are larger, designed for children, and have the "international markings" for no fishing or hunless than 1.0 parts per billion of mercury in both water and soil samples and in turtle meat.

"And if you think it's easy to catch turtles in East Fork Poplar Creek, I wish you'd come teach us how," Bibb joked.

The water samples showed 0.05 ppb in four separate samples: From 250 feet upstream, near Spellman Avenue; 200 feet west of Dillard Avenue; 300 feet west of Tuskeegee Drive; and 30 feet north or Tusculum Drive.

The soil samples showed:

- 0.40 ppm in soil taken six feet from the creek;
- 0.10 ppm taken 20 feet from the creek;
- 0.15 ppm taken six feet from the creek;
- 0.05 ppm taken 10 feet from the creek;
- 0.05 ppm taken 100 feet from the creek;
- 0.85 ppm taken 10 feet from the creek.

Turtle samples showed 0.12 ppm in a turtle from Tuskeegee Creek; 0.058 ppm in another turtle from Tuskeegee Creek; 0.056 ppm from South Hills Pond; and 0.46 ppm from East Fork Poplar Creek behind Winn Dixie.

Other soil samples taken "around the town" show levels as high as 300 ppm in soil along Fairbanks Road near Jefferson Junior High School — fill dirt along the sewer line which had been pulled from East Fork Poplar Creek. A total of 450 construction, Bibb said.

"We haven't had a single positive air sample for mercury," Bibb said, adding that no mercury can be detected anyplace in the air.

Dr. Nathaniel Revis, director of the Oak Ridge Research Institute, reported preliminary results from studies he has done in feeding contaminated soil to pigeons, rats and mice.

"Elemental mercury is not well-absorbed," Dr. Revis told the group, adding that it was elemental mercury that was lost at Y-12. "That's important, and I want to keep repeating that."

Elemental mercury, over the years and with bacterial action, can turn into methyl mercury, may have an interest," Dr. Revis said, "so what are you going to do then? Universities may have research grants which may give them an interest. There has to be some point in time that you accept that reports are valid results done without bias for the purpose of trying to find out the biological effects of mercury."

When Stuart continued that line of questioning, Bibb interrupted. "I've been sitting here trying not to lose my temper. But I can't let the integrity of this man go unchallenged. I resent the insinuation that Nat Revis can be bought for the price of a DOE grant. That bothers me. That bothers me greatly."

(Continued on Page 8 No. 6)

DOE agrees to h

By TERRY McWILLIAMS
Journal State Reporter

After six hours of face-to-face negotiations with state and federal environmental officials, the Department of Energy agreed Thursday to take steps to control hazardous wastes released from its Oak Ridge facilities.

The pact, called a "memorandum of understanding," is an 11-point program outlining further testing of ground, water and air to determine the extent of pollution in and around the Y-12 nuclear weapons production plant, and to make plans to stop the discharges.

The document includes plans for a task force composed of the Environmental Protection Agency, the State Department of Health and Environment and the Tennessee Valley Authority to study contamination in East Fork Poplar Creek, a stream which absorbed as many as 500,000 pounds of toxic mercury over a 27-year period.

EPA and state officials expected a plan three weeks ago, but DOE balked and re-wrote the document to their own specifications.

All three parties acted pleased with the results of Thursday's negotiations.

"I think the memorandum of understanding is a blueprint of a plan to develop baseline data for developing control measures to put in place," said EPA regional administrator Howard Zeller. "It's a tough agreement requiring a lot from DOE, but it's fair and it will get the job done."

However, Gary Davis, an attorney with the Legal Environmental Assistance Foundation, criticized the pact.

"It's a step I say goes into the right direction, but it doesn't go far enough," Davis said. "The main problem is it allows continuing violations of state and federal law and it doesn't recognize that DOE is presently violating the law."

A cover letter with the 10-page memorandum said the agreement "serves as a work plan for obtaining information . . . from which . . . further plans, actions and remedial programs will be developed."

Zeller said the testing outlined in the memorandum will eventually lead EPA to issue Y-12 new pollution discharge permits, to replace ones which expired in 1980 but have been extended while talks continue.

The memorandum calls for DOE to do the following:

- Submit descriptions and eventual treatment measures about each Y-12 discharge into East Fork Poplar Creek, a stream which eventually flows into the Clinch River.
- Take steps to eliminate a dumping site called New Hope Pond, and hazardous waste collection sites known as the "S-3" ponds. Although the S-3 ponds leak badly into Bear Creek, according to state documents, the new memorandum deletes a requirement for DOE to build a new "central industrial treatment plant" by July 1984.
- Assess the biological impact on another piece of land where oil was buried, and an order to "take appropriate action."
- Form a task force with EPA, TVA, and the state to study contamination in East Fork. The group will look at sediment and flood plain contamination from plutonium, mercury, lead, uranium, PCBs and other elements, and will monitor the air for mercury.
- Conduct a groundwater anal-

egin hazardous waste control

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n," said Davis, "but some-
h the track record DOE has
to believe" the agreement
be violated.

TVA's experience will aid cleanup

By MATT NAUMAN
Journal Energy Reporter

Past experience cleaning up mercury spills should help TVA deal with the contaminated East Fork Poplar Creek near Oak Ridge, an agency environmentalist said Thursday.

Larry Clark, manager of TVA's regional water management program, said mercury work done in the early 1970s at Pickwick Reservoir and more recently on the North Fork Holston River in southwest Virginia was the primary reason TVA was asked to join a four-member task force.

The task force, which also includes the Environmental Protection Agency, the state Public Health Department and the U.S. Energy Department will study the impacts of 475,000 pounds of mercury which poured over a 30-year period.

The release into the creek was among 2.4 million pounds spilled, leaked or mishandled between 1950 and 1977 at the Oak Ridge Y-12 weapons component plant. About 1.9 million pounds were leaked and settled into the earth, while another 30,000 pounds were vaporized into the atmosphere.

Presently, TVA is assisting in a large-scale cleanup project which includes the diversion of the North Fork Holston River at the Olin Corp. plant near Saltville, Va. A decade before, TVA's first experience with mercury came at the Pickwick Reservoir in southwest Alabama.

Realizing the potential hazards of the toxic metal, the U.S. Food and Drug Adminstration in 1970 established a guideline of 0.5 parts per million (ppm), later raised to 1.0 ppm, as the maximum concentration of mercury in edible fish flesh.

In the early 1950s, the Olin Corp. began using mercury to produce caustic soda and chlorine. At the Saltville plant, mercury leaked into the environment, was washed out in the wastewater and vaporized into the atmosphere, resettling back on land and water.

"It was a very, very sloppy operation," Clark said.

Based on calculations obtained from similar plants, as much as 75 pounds of mercury was lost daily at the Olin Corp., according to TVA reports.

As the mercury scare grew in the early 1970s, TVA biologists sampled the fish in the North Fork Holston River which ran by the Olin Plant. All but one of the fish sampled exceeded the EPA guidelines, while some had triple the acceptable amount.

In September 1970, the Virginia State Board of Health banned fishing on the North Fork from Saltville to the Tennessee line. Shortly thereafter, Tennessee followed suit on its side of the border.

Olin, unwilling to pay the high price of pollution controls, elected to close its Saltville facilities in 1971.

Closing the plant didn't stop the problem, however, as mercury in sediment continued to contaminate the river. Monitoring showed the concentrations of mercury in fish also increased.

The task force of TVA, EPA, Virginia and Tennessee said the mercury was coming from three sources — the riverbed itself, the soils around the plant and the giant muck pond which borders the river downstream.

Today, the company is in the middle of a $5 million cleanup operation which includes changing the direction of the river to clean the sediment below and stopping the runoff from the muck pond.

Starting in November 1982, workers and heavy machinery changed the river's flow to expose bedrock and sediment. Olin plans to reclaim as much mercury as possible and bury the remaining sediment under a clay cap.

The bedrock was washed to force mercury below the surface and was coated with sprayed cement. At the same time, a 3,000-foot diversion ditch is under construction to carry rainwater around a huge "muck pond" used to store solid wastes. The muck pond is also contaminated with mercury.

The 90-foot deep muck pond was too unstable to cap, so a diversion ditch which will redirect 80 percent of the runoff water and reduce by 40 percent the rainwater entering the pond.

Back in the early 1970s, mercury was discharged from the Diamond Shamrock Plant into Pickwick Reservoir. Tests showed the mercury levels in fish were above the EPA limits.

After treatment began, mercury levels in fish were monitored through last year.

Citizens implore state to limit

OAK RIDGE — A citizen's complaint was filed Thursday against the State Department of Health and Environment calling for the agency to take stronger measures limiting toxic waste emissions from the Department of Energy reservation.

Under state law, the department must take action within 90 days regarding the complaint, signed by 40 Anderson and Roane county residents.

The group asked the state to seek an injunction halting all dumping of hazardous waste at the Y-12 nuclear weapons plant into a series of man-made ponds, where seepage carries the toxic and radioactive chemicals into Bear Creek.

The residents also asked state officials to seek a legal document binding the Department of Energy to follow specific dates and actions for reducing emissions and cleaning up toxic sites. Those actions ar outlined in a "memorandum of understand ing" reached in May among the state, th DOE and the Environmental Protectio Agency, but it is not binding.

"We felt it was a necessary move eve though there are good indications of effor being made," said Vicki Quatmann, one o the people who signed the petition "There's more vigor and seriousness tha

men I see by th

Y-12 waste dumping

can be put into this thing."

The five-paragraph complaint, backed by the Save Our Cumberland Mountains organization, a watchdog group based in Jacksboro, said the citizens recommended those measures after hearing testimony before a Congressional subcommittee by a Michigan State water quality expert and by a Knoxville legal firm specializing in environmental law.

State Enforcement Chief Bob Slayden said Thursday his office hadn't received the petition, but said it would be immediately forwarded to the Knoxville regional office for an investigation and recommendations to the commissioner.

If the residents don't like the state's response, Slayden said, they can appeal to the Water Quality Control Board.

Journal

County attorney Stuart asking a question.

• Number 6

Mercury

— From Page One

Bibb's comment brought loud
)plause from the audience.
During other questioning,
eroy White asked, "Are we get-
ng a true analysis from a con-
ned pigeon?"
Yes, Revis responded. "That's
ery comparable with animals
the wild."

Paul White asked, "Are we living in danger right now or not?"

Bibb grinned, "I was hoping somebody would ask that. That may be the most important question anybody's going to ask here tonight. I'm still living here and I don't think we are."

Revis responded, "We have not found any basis at all for concern."

Al Chambles asked about "the bad publicity" resulting from the mercury disclosures, and Bibb added, "I've said from day one that there is no health hazard here, and I'll continue to say that. The creek is posted (against fishing and swimming), and that's appropriate. And wading in that creek is not going to hurt you."

And Bibb later said, in response to a question from Tony Marable, "How many of you eat a can of tuna? When you eat a single can of tuna, you exceed the FDA guidelines for mercury."

In response to another question, Revis said that there is no indication in any research that mercury contamination is linked

La Grone shows the new metal signs being posted along the creek.

cern. Symptoms of mercury poisoning include impaired vision and speech and limited muscle control, and, in extreme cases, brain damage, he said.

One resident expressed concern that the news about the mercury releases might harm the city's drive for increased industrial and residential growth. "I think if you listen to the rumor mills, it would have negative impacts. What we're trying to do is get out factual information," La Grone said.

Ruth Walker, a Scarboro resident, responded that the reason people are not moving to Oak Ridge is because jobs are not available. "Advertise 6000 new jobs in the morning, and you'll see how many people move to Oak Ridge, no matter how much mercury has been released," she stated.

OAK RIDGER 6-22-83

ncipals hear little concern about mercu

--y CATHERINE FOSTER

With new survey results show-... even higher levels of mer-y, principals at both Jeffer- and Robertsville Junior High chools still say they've had no elephone calls so far from con-ed parents of pupils.

Our first concern is the safe-of the staff and students," nd Thomas Hayes, principal at bertsville, this morning. "We'll do whatever the state tells us to do."

But Hayes, as well as Robert Moss, Jefferson principal, point out that the results from sampling at both schools are so new — and school is out for the summer — so there's been no immediate reaction so far.

Robert Smallridge, Oak Ridge school superintendent, says that the results he's seen so far "are saying to me that we have higher than normal amounts of mercury in the soil. Since there is no federal standard (for mercury concentrations in soil), and I'm not an expert, we'll have to defer to others on what kind of problem we might have and what we should do about it."

Smallridge added that, with school out for the summer, there's time for those experts to confer. "I'm looking forward to hearing from those experts.... I intend to know something before school opens."

Results from monitoring throughout the city are continuing to come in, and Department of Energy officials are sifting through data this morning in an effort to be better prepared for a meeting tonight between DOE staff and residents of the Scarboro community on the mercury losses. That meeting is scheduled for 7:45 p.m. at Spurgeon Chapel AME Zion Church, 100 Houston Ave. Joe La Grone, manager of DOE's Oak Ridge Operations, and William R. Bibb, assistant DOE manager, will be presenting the latest survey results to the group tonight, and will answer questions.

According to Jim Alexander, DOE spokesman, figures now from the area along the perimeter of Jefferson Junior High School are approaching 300 parts per million of mercury — considerably higher than the 40 ppm reported earlier this week from preliminary testing.

DOE officials are analyzing the mercury levels in soil, air and water following the disclosure last month that 2.4 million pounds of mercury are unaccounted for from operations at the Y-12 Plant between 1950 and 1977.

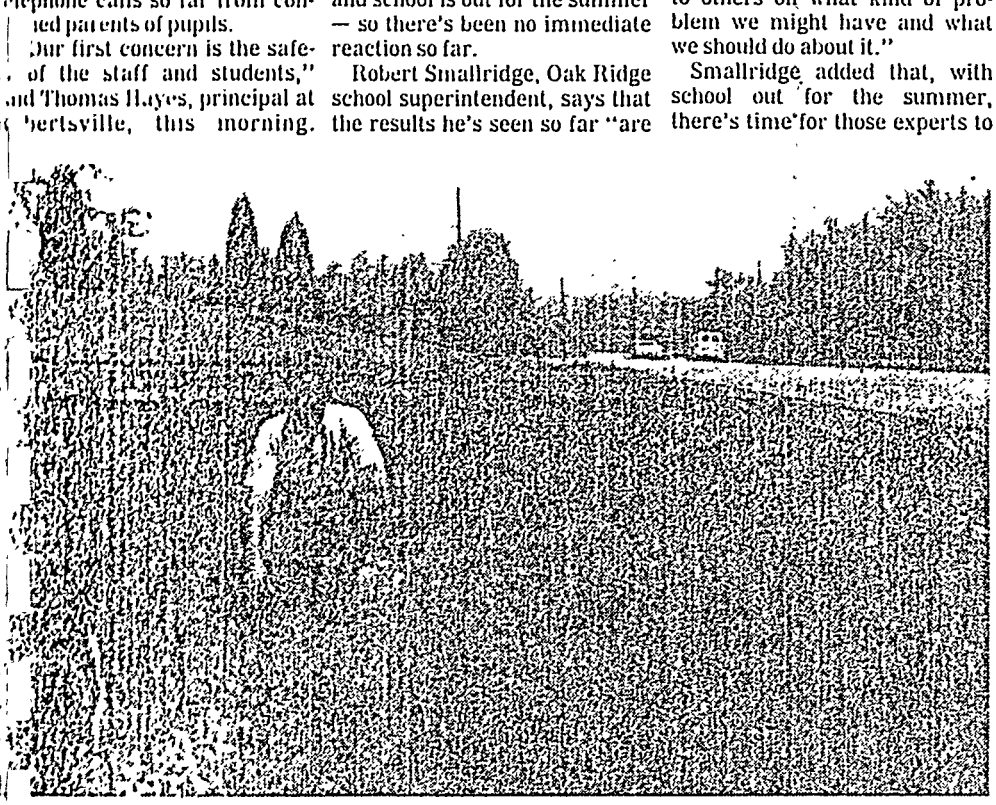
The high levels at Jeff are apparently because ment from East Fork P Creek was used as fill dirt the new sewer lines were in ed; the highest levels of tamination are turning up the sewer lines.

Smallridge said that, as f he knows, no creek sedi was used as fill dirt at any schools during the current s line construction.

Randy Lovegrove, with t ty public works depart said that sediment from Poplar Creek bank and from the creek bed deposited in front of Jeff Junior High, but he said he sure where else that sedi might have been used in s line construction, if indeed it used elsewhere at all.

The use of sediment in areas throughout the city been a concern to DOE offic who have expressed some w that residents might have t some sediment for use as fil in gardens. If any residents done that, DOE officials ask they request a mercury soil by calling the Munic Building.

Moss said he'd rather not ment on the figures from Je son. "I'm just not well-infor enough on the hazards to m any meaningful comment o



Moss shows the area along the new sewer line construction, where levels of mercury were found.

y; fill dirt gets attention

The creek running adjacent to Robertsville Junior High School often floods the ballfield.

survey results," he responded today.

He added that he hadn't seen samplers at his school. "The first I knew of it was seeing a television crew taking shots at the school, and then, of course, I read the story in last night's paper."

Oak Ridge Associated Universities, which is doing the survey work for DOE, has been examining dirt samples from near the surface in a variety of areas throughout the city.

The contamination at Robertsville — which reaches only about ten parts per million — is found along the ballfield area at the edge of the creek; the contamination apparently came from flooding along the creek. Hayes explained that the creek floods in late winter and early spring, during times of heavy rainfall.

(Continued on Page 7 No. 2)

Issues

Does waste from Oak Ridge facilities

OAK RIDGE — Most people here don't consider the discharge of mercury and other chemicals from nuclear facilities to be a serious health risk for them, an unscientific opinion poll conducted on the street indicated.

Of 11 people surveyed by a Knoxville Journal reporter, seven said they feel chemicals from the plant are absolutely no threat to the community. The other four individuals said they thought the chemicals were somewhat or very dangerous.

All indicated that if the chemicals were determined to be hazardous to the health of the people in the community, the U.S. Department of Energy should be the agency to clean up the pollution.

People were asked the question, "Do you feel the discharge of radioactive chemicals and other pollutants from the Oak Ridge nuclear facilities presents a health risk to Oak Ridge residents? If so, who should be responsible for the cleanup?"

Here are the comments:

I live just a few streets away from Poplar Creek. I went ahead and planted my garden this year, so I'm not too much afraid of it.

Yvonne Mason, 47, 301 East Faunce Lane

I live around a lake, and it concerns me somewhat. I feel it's a great health risk because it has been proven to be dangerous.

Mike Dodson, 18, Clinton

If they create it they should clean it up. They should be responsible for their actions

Iris Kunkel, 33, 124 Indian Lane.

What d

Extra wants you residents of Wes Just send your c

Issues

Does facili

I worked at

present a health risk?

you think?

pinion on this week's issue and other issues of concern to
noxville, West Knox County, Oak Ridge and Anderson County.
nments to Extra Issues/P.O. Box 911/Knoxville, TN. 37901.

waste from Oak Ridge ties present a health risk?

e Y-12 plant

I live right on Popular

I've lived here 30 years

A poisonous jo

Loyal Oak Ridge workers exposed

By RANDELL BECK
and TERRY McWILLIAMS
Journal Reporters

Since World War II, the federal government has quietly polluted the environment at Oak Ridge. Lakes and streams have died. Unsafe levels of radioactivity have been found in the groundwater. Not only are residents in Oak Ridge affected, but everyone who may drink the water or use the recreational facilities. How did it happen? How bad is it? What has been done? What's in the future?

The Knoxville Journal today begins a five-part series to deal with those questions and others. It's the culmination of four months of research by reporters Randell Beck and Terry McWilliams, who interviewed dozens of people and poured over thousands of documents to come to the conclusions in this series.

Almost every work day of that grim, Cold War year of 1953, Charlie Robinson and other electricians had one important job.

They had to inspect the many fuse boxes in the dreary three-story building named 9201-2. It was an unpleasant duty. But Robinson, 33, a new employee of Union Carbide Corporation, didn't question it.

It had to be done.

So the electricians would go from box to box, open the steel lid and check the wire connections. The success of the mysterious experiment in building 9201-2, at the secret Y-12 plant, depended on those inspections. Only a few knew why tons of mercury, the elusive, slippery metal used in thermometers, were heated in huge vats.

If you weren't careful, electricians like Robinson were told, vapors from the boiling mercury would penetrate the fuse boxes and short out electricity for the complicated chemical process.

So they checked the boxes. Only now, 30 years later, do men like Robinson grasp the perils of the job.

"When you opened the box," Robinson remembers, "that mercury would just pour out on top of you. It got all over me. They didn't tell me the stuff could hurt you.

"Hell, they never did tell me."

Mercury, workers learned many years later, can damage many organs in the body. It can affect your brain and nervous system. Robinson and other former workers now have difficulty writing their own names. They worry about that.

Today only small quantities of mercury are used in Oak Ridge, where the United States government owns three plants on 37,000 acres of rolling foothills. They are the Y-12 weapons components plant, the Oak Ridge National Laboratory and Oak Ridge Gaseous Diffusion Plant.

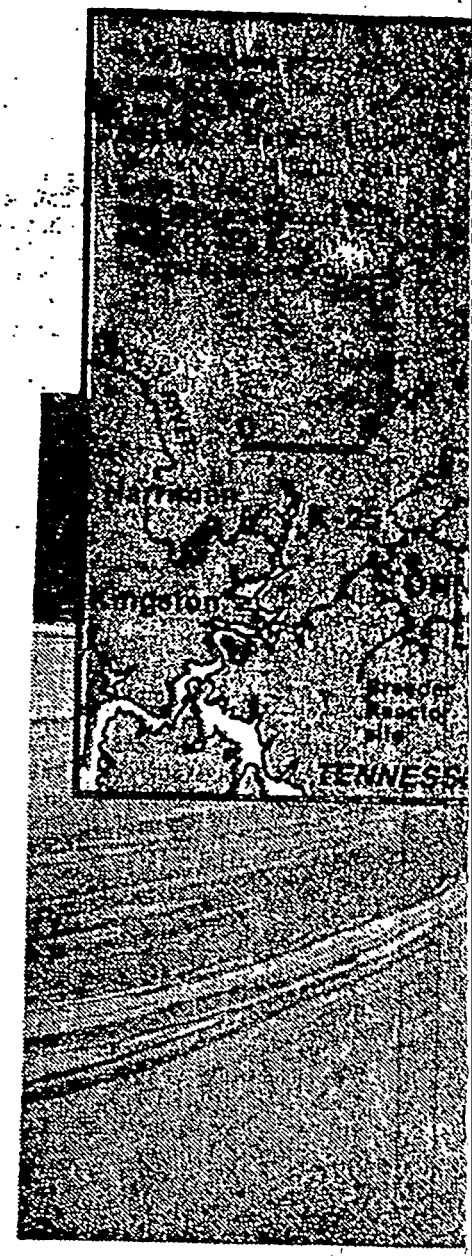
But the government's almost cavalier attitude toward dangerous chemicals, and their effects on people and the environment, has changed very little since 1953. In many ways, the Cold War still rages in Oak Ridge. Lines clearly drawn after World War II — between America and Russia, good and evil — remain clearly drawn today.

Like they did 30 years ago, the plants discharge, dump and bury a variety of hazardous chemicals and radioactive waste. Much like years past, despite efforts of the state of Tennessee, the plants still ignore many laws that regulate the wastes.

And it's all for one big reason: weapons. At any cost, the federal government decided long ago, our stockpile of nuclear weapons would grow. At any cost, those weapons would be built bigger, more powerful.

The cost has been great.

Since World War II, a Knoxville Journal series this week will show, the federal government has:



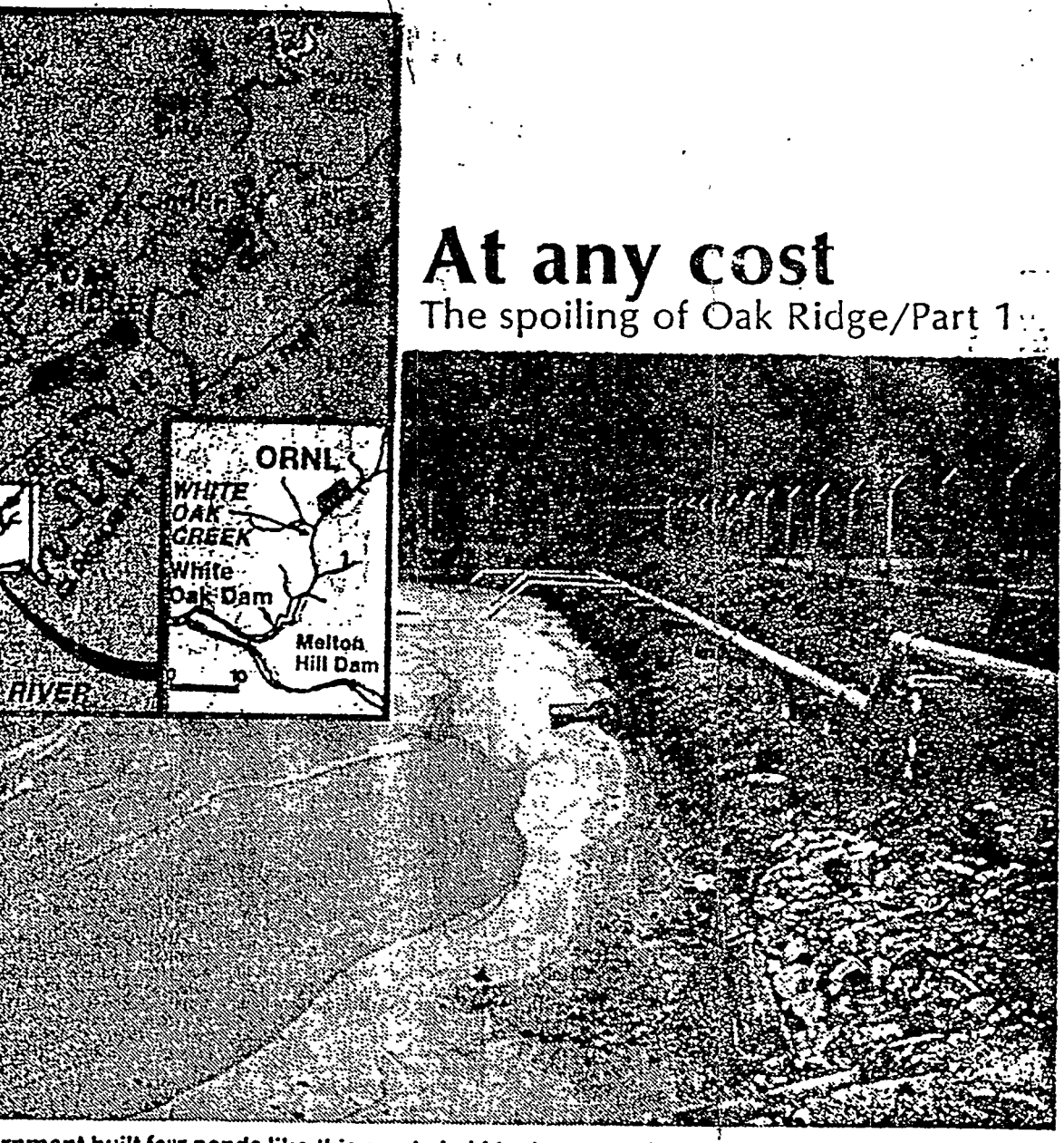
In the early 1950s, the go

■ Secretly dumped tons of toxic, often-deadly chemicals into Oak Ridge streams. The result: rivers and creeks with contaminated sediment, fish and vegetation.

b

Journal 11/25/83

nemselves without knowing the risk



At any cost

The spoiling of Oak Ridge/Part 1

rnment built four ponds like this one to hold toxic wastes from the weapons plant.

Dumped massive amounts of ctive waste into poorly dug es, contaminating precious round water, leaving that for generations to come.

■ Threatened the lives of its own employees by exposing them to unsafe levels of chemicals, and forcing those workers to remain quiet about the very substances that still endanger their lives.

■ Ignored federal and state laws that tried to protect the environment, claiming time and again

See Chemicals, Page A3

Metro cc 11/28/83

The Oak Ridger

35TH YEAR—NO. 207—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, NOVEMBER 4, 1983

• Number 2

Task force

— From Page One

McKinney, task force chairman and a member of the state water management division, said.

Wayne Hibbitts, representing DOE, said that while there was still a lot of legwork to do, "DOE will either provide a status report or implement the plan within 30 days."

The day-long meeting was spent reviewing the work done by the four subcommittees. Most of the comments were directed to the plan developed by the Off-Site Contamination Study Group. This group includes the soil, sediment and vegetation samples which have been collected to determine mercury levels. As of today the number of samples collected totals 1079.

In its report, the off-site group proposes to establish a "systematic environmental monitoring program within the Oak Ridge community in order to define the extent of the contamination attributed to DOE operations."

Among the areas to be included in such a program are development of a history of stream dredgings and haul sites, development of a history of contaminated equipment, sort existing data, analyze plants and well get that out in the open."

In closing Zeller said, "There is still an awful lot of work for this group to do. We need to look toward the end of the study, but we have to look at first things first."

McKinney and other members of the Task Force hope to have quarterly reports on the progress of the work. McKinney said that there will be an effort by the Task Force to hold a public meeting in Oak Ridge in mid-December to inform the public of the steps being taken and what remains to be done. No formal date has yet been set.

EQAB-Mercury

By ROBIN HEAD INTEMANN

The Oak Ridge Environmental Quality Board met Thursday to dicuss a number of topics including findings of the mercury Task Force.

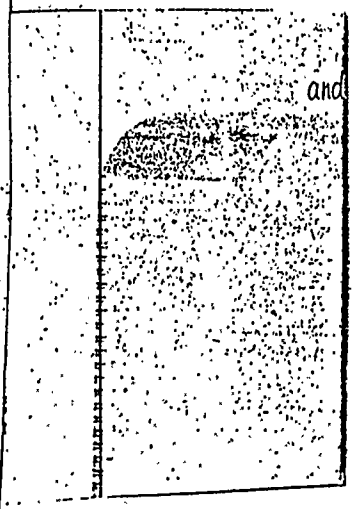
Charles Coutant, EQAB chairman, and Jim Harless, Oak Ridge City staff liaison to EQAB, attended the mercury meeting held all day Thursday at the Tennessee Department of Health offices in Knoxville.

clean-up campaign. EQAB member Al Chambles met with the state coordinator of the program and Mayor Roy Pruett.

The annual report was presented and approved unanimously. Among the items included in the report were EQAB's involvement in the mercury situation in Oak Ridge, the General Services Administration sale of the Turnpike Green, input into the consideration of Oak Ridge as an alternative site to receive radioactive waste and several others.

Flyash released from the Y-12 Plant was brought up by some members and described as a "nuisance" and "aesthetic problem." It was decided that this is a State Health Department problem and one of which that EQAB should be aware.

Those attending Thursday's EQAB meeting were Al Chambles, Charles Coutant, Larry Rackstraw, Cyd Ryman, Bob Spore, Audrey Schlafke-Stelson, Margaret Terrell, Margaret Elizabeth Terrell and Jim Harless.



history and develop interim measures.

The time frame of this and the work proposed by the other groups was a minor source of disagreement. A range of from nine months to three years was proposed to complete the work plan. However, a pathway analysis and risk assessment is the anticipated final outcome of the task force and is expected by early 1985.

Throughout the meeting most of those in attendance expressed positive comments on the progress the Task Force is making. One criticism came from Charles Coutant, of the Oak Ridge Environmental Quality Board, who said that much of the proposed work was "textbook research," and was not always specific to the Oak Ridge situation. Coutant was asked to provide specifics and they are to be included in the conceptual plan sent to DOE.

Another concern directed toward the off-site group were questions from the public, specifically to whom the public should address questions. Many Oak Ridge residents who requested sampling for mercury have not received information on the results. Terry Cothron, an environmental engineer with the TDHE, said this was due to a lack of guidelines for mercury in soil. He added that he hopes to have such guidelines completed in two weeks and answers to those who still have questions on what the levels mean.

Overall, the proposals submitted by the subcommittees will involve detailed evaluation of existing data, synthesizing technical workplans, collection of more data, continued monitoring and interpretation.

The proposals submitted by the four study groups were approved as a whole as a conceptual workplan to be managed by DOE.

Brooks added, "It's got to be paid for by DOE — we might as

developed by the four Task Force subcommittees were presented and approved (see related story). A few minor changes were offered by those in attendance of the mercury meeting and Coutant was asked to help by providing some specifics of the problem.

"My criticism was that the work plans were too general. They really weren't oriented to the problem we have here," Coutant told EQAB. However, both he and Harless expressed satisfaction at the overall outcome of the day-long meeting.

Discussion of general EQAB business was preceded by a presentation of the proposed zoning ordinance changes. Guest speaker Anne Dunthorn, a member of the Oak Ridge Planning Commission, made the presentation.

Ms. Dunthorn explained the Planning Commission's efforts to bring about clearer ordinances for the city to ensure clearer interpretation. The efforts, she said, have been divided into two major sections known as Phase I and Phase II.

A public hearing is scheduled for Nov. 21 for Phase I. Ms. Dunthorn said this is concerned more with "non-controversial issues." This will involve rewording and updating many of the ordinances, she said.

Ms. Dunthorn encouraged EQAB to become active in the development of some of the ordinances included in Phase II, the more controversial of the two. Landscaping and land erosion ordinances were areas in which Ms. Dunthorn suggested EQAB become involved.

Coutant agreed, as did the EQAB members present, that this is an area in which the board should renew its interest.

In other business, the current EQAB officers were re-elected by acclamation. Coutant serves as chairman; Shelby Smith-Sanclare is vice-chairman; and Bob Spore is secretary.

Discussion followed on a litter

state or EPA until Aug. 29. "Such a delay in reporting of a serious matter is unacceptable," according to the report.

DOE has been requested to file a response to this particular complaint within ten days; DOE received the report Nov. 1.

Among the areas of concern to EPA and the state are the sewage treatment plant which discharges to White Oak Creek. The discharges are attributed, in the report, to "broken and leaky lines."

The reports continues, "In addition to sanitary wastewater and radioactive leakage, other wastes are being discharged to the Sewage Treatment Plant." These wastes are known to include silver and cyanide.

Groundwater and burial grounds are also identified as problems at ORNL.

"In the past, groundwater data has not been reported in annual DOE Environmental Monitoring Reports." Such information is to be included in future reports.

Of the groundwater the reports states, "... there is concern due to the extent of contamination of the X-10 site and the fact that there are 16 public groundwater supplies within a 20-mile radius of ORNL."

Wayne Hibbitts, DOE safety and environment official, said that the possibility of seapage of groundwater contamination was raised in 1975, but not seen as a real problem. Hibbitts said that the U.S. Geologic Survey has looked at the possibility through the years and it has essentially "been put to bed."

Other areas identified as contributing to the contamination at ORNL include White Oak Lake where a number of radionuclides have been found in both water and sediment samples. A total of 13 areas were identified as a result of the EPA/TDHE inspection.

By SANDRA LENZI
Medill News Service

\SHINGTON — The loss of
illion pounds into the land
nd Oak Ridge's Y-12 Plant
s no immediate danger to
Ridge residents a newly
ised Congressional report
ludes.
.e report is more guarded in
ong-term assessment, but
rally concludes that there is
eason for alarm if specific
sures are taken.
ie 56-page report concedes
e are deficiencies in the data
the mercury discharges.
ever, the report holds that
public health danger is
imized by the fact that the
cury is dispersed through
Clinch River system, in the
ock under the Y-12 facility,
by the existance of a buffer
between the Y-12 Plant and
acent housing areas.
ut, "the potential for long-
n harm from mercury is
der to resolve," according to
report. Again, "signigciant
s" in the data make it im-
sible for experts to accurate-
ssess the problem, to predict
future enviromental impacts or to correct them.

However, at least one witness Dr. Chester Richmond, of Oak Ridge National Laboratory, testified that "in all probability there is not a long-term threat," from the mecury releases.

The report states that if the missing data are expeditiously collected and if a monitoring plan is established and neccessary corrective actions taken, "It is unlikely any harm will occurr."

The report is a joint effort of the Energy Research and Production and the Investigations and Oversight Subcommittees of the House Science and Technology Committee.

It is the result of an investigation which included a hearing held in Oak Ridge on July 11. The subcommittees are chaired by Reps. Marilyn Lloyd (D-Tenn.) and Albert Gore Jr. (D-Tenn.), respectively.

They submitted copies of the report to the full House Science and Technology Committee, which approved it for publication Thursday.

The study lays out further tests and precautionary steps that should be taken. It calls for more groundwater tests to ensure water safety and to investigate the possiblity for human poisoning through inhaling or ingesting contaminated soil and dust, especially around Jefferson Junior High School.

"According to Mr. Zeller, Center for Disease Control specialist (sic), should also be brought in to assess the health treat, if any, posed by the highly contaminated — 300 ppm (parts per million in hectograms) and above — soil used as fill at Jefferson Junior High School," the report states.

The data provided by DOE after the hearing showed that mercury levels as high as 400 ppm have been measured in the fill, and DOE has agreed to cover the soil with six to eight inches of topsoil as a protective measure, according to the report. The CDC has been asked to assist.

The report also called for long-term monitoring of mecury levels in fish. "Review of the documents provided to the subcommittees show that the uptake of mercury in fish may not necessarily be decreasing," the report states. "For example, 1982 mercury levels in fish, while still generally low for FDA limits, have generally crept upward slightly from 1977 and 1978 values in the same sampling locations."

Generally, the report advises DOE to make any calculations, studies, or samplings that would allow it to discern a comprehensive, "big picture."

Hearing testimony also warned of the risk from pollutants other than mercury.

"All parties agree that there is substantial contamination by various organic solvents, radioactive waste, heavy metals and PCBs at the Oak Ridge Reservation, '" the report states.

Nevertheless, the report's conclusions assert that once the sources of chemical groundwater pollution — the S-3 ponds, New Hope pond and various land burial sites — are cleaned up, no imminent public health hazard will exist.

However, potential long-term effects are unknown, the report says. Again, more data is needed for accurate predictions, according to the report.

The report condemns DOE's handling of disclosures about the mecury leaks. The DOE "exercised poor judgemnt and did not act responsibly during the period 1977 through 1982," the report says.

"From at least 1977 and

(Continued on Page 7 No: 8)

Clean-up costs high

By ROBIN HEAD INTEMANN

The cost of the mercury clean-up by the Department of Energy could be more than $1.4 million once the work proposed by the Mercury Task Force gets underway, but getting the work done — not the cost — is the primary concern.

Thursday at the Department of Health in Knoxville, representatives from the Environmental Protection Agency, the State Department of Health and Environment, Tennessee Valley Authority, U.S. Geologic Survey and DOE met to discuss the conceptual work plans developed by four subcommittees of the Task Force.

Included in the proposed plans are budgets for the clean-up. The proposals are part of an effort to remedy the mercury situation in Oak Ridge. Last spring DOE disclosed that over a 20-year period, beginning in the 1950s, 2.4 million pounds of mercury was unaccountable. The task force was formed in late May to assess the environmental and health effects, if any, the release may have.

While the highest proposed estimate came from the water/sediment/flood plain study group, the cost was of less concern than the actual work.

"I am more concerned now about getting the work underway," said Howard Zeller, of EPA. "I'd like to see the work begin right away."

This was echoed by Ralph Brooks, with TVA, who said, "I think the work should begin tomorrow."

Zeller did say that the budget was well within bounds for such a program in Oak Ridge.

The task force plans to send DOE the formal proposal Nov. 11. The group has asked that DOE review it and make plans to determine contractors for the work within 30 days.

"If we can come out of here today with a commitment from DOE to accept the conceptual plan, then we will have done what we set out to do," David

(Continued on Page 7 No. 2)

has environmental woes

By ROBIN HEAD INTEMANN

With the recent emphasis on mercury and other contaminants from the Y-12 Plant in the environment, it is of little surprise to the Department of Energy that the Oak Ridge National Laboratory has environmental problems of its own.

In late August, Tennessee Department of Health and Environment and Environmental Protection Agency officials toured ORNL in an effort to evaluate EPA and Tenessee Water Quality Act compliance. A number of violations were found as a result of that inspection. The findings were made public today.

DOE has been aware of the problems for several years. In 1981 provided EPA with a survey of 95 discharge areas at ORNL. The discharges are to Melton Branch and White Oak Creek.

The report states, "releases from ORNL are causing pollution of the waters of the state." Descriptions of the violations, which include discharges and management, are provided in the report.

Wayne Range, DOE spokesman said today, "We think the review by the state does point out a number of areas of which we were already aware. We have been mvoing toward the correction of those areas for some time now."

Radiologic releases of iodine-131 on Aug. 19 in White Oak Creek were not reported to the

(Continued on Page 7 No. 3)

• Number 6

Mercury study

— From Page One

"This is the worst situation I've ever seen," White said.

"I'm sorry you feel we've been secretive," Bruner said. "I can't agree with that."

As for the length of time for the results to be released, Bruner said, "There are so many details, they were so slow in coming. It bothers me, too, it takes so long to get answers to questions. But there are no coverups, no secrets," he said. Those who were asked to give urine and hair samples for mercury level testing were notified, he said.

Al Brooks, who lives at 100 Wilshire Drive, also had a number of complaints.

"Why wasn't I contacted?" he asked. "I live on property 80 percent in the flood plain (level land near the creek that may be submerged by floodwaters). I mow, garden, but I don't remember receiving such a survey," he said. "I've probably been exposed as much as anyone."

Brooks didn't confine his complaints to state officials; he also took the media to task for not better communicating to the public the differences between the effects of exposure to organic and inorganic mercury — both of which were being tested for in the study.

According to Wayne Hibbits, a DOE official, only one standard for mercury levels has been established, although there are several conflicting guidelines.

The Federal Drug Administration has set one part organic mercury per million parts of fish, Hibbits says.

No levels have been set for inorganic mercury, he says, but there are accepted guidelines for total mercury.

"Early on, the state set a 12 parts per million for total mercury," Hibbits said, "but this has been replaced by the guideline used by the local study group."

The local study group says for levels above 500 parts of mercury per million parts of soil, remedial action must be initiated. If the soil contains less than 500 parts per million, remedial action is optional with the use of the land to be the deciding factor.

The report also lists the different health risks for the different forms of mercury depending on the type of exposure.

According to the report, the general effects for inhaling inorganic mercury range from insomnia, loss of appetite, weight loss, fatigue, to more severe tremors of the arms and legs and behavioral changes.

For inhaling organic mercury (methylmercury) the effects can be irritation of mucous membranes. For fetal exposure to organic mercury, the effects can range from delayed developmental milestones to mental retardation. For postnatal exposure to organic mercury, the effects range from progressive neurologic symptoms to hearing loss, coma and death.

Brooks also pointed out seeming contradictions in report data and actions of public officials.

"Your report says there are no substantive hazards yet contaminated fish signs remain," he said. Signs were posted along East Fork Poplar Creek and Clinch River warning fisherman that aquatic life might be contaminated and might be hazardous to eat. "There's a tremendous credibility gap," he said.

But Wilson Pitt, a member of Oak Ridge City Council, was pleased with the results.

"I'm tired of Oak Ridge being crapped on," he said referring to media coverage of Oak Ridge's environmental concerns.

"I won't this report understood and understood clearly," he said.

Elaine Trauger, a council colleague who serves on several national environmental committees,

Is this step one in (Oak Ridge) getting a clean bill of health?"

"This is good news," Bruner concurred but went on to say, "I am convinced there is a very serious environmental problem on the DOE reservation. It took many years to create and it will take many years to clean it up. DOE and the city are trying harder than I ever imagined to clean it up. It's good news tonight," he said again, but Ms. Trauger pressed him.

"We have to know what it is that we're after," she said. "I encourage you to be more definitive."

After the meeting Bruner said he hasn't changed his mind that "Oak Ridge is the No. 1 environmental disaster area in the state." But Bruner said that a distinction needs to be made between environmental problems and health problems. The environmental problems in Oak Ridge are not necessarily health hazards, he says.

Bruner said the state is only a step away from going to DOE with a request for a grant for the state to get involved with cleaning up Oak Ridge. He estimates it could take $100 million a year for ten to 20 years and 100 people to get the job done.

Methodology

The study was based on a door-to-door survey taken in June and July of 1984 with 2,627 city residents and city workers participating. The sample, which represents 10.7 percent of the city's population, included those judged to be at high risk for exposure to mercury contaminated soil, sediment and aquatic life and others who were not.

Census blocks defined in the 1980 U.S. Census were used as the primary sampling unit, with the survey being conducted in the 31 census blocks that approximated the 53 grids along the East Fork Poplar Creek floodplain and the new sewer lines where soil mercury was assumed to be elevated; in the seven census blocks closest to Y-12; and in the 40 census blocks designed as the comparison.

According to Dr. Rowley, three attemps were made to contact the 2,962 eligible households.

A questionnaire designed to collect demographic data was completed on each participating household to identify potential routes of mercury exposure by several soil pathways (gardening, mowing, recreational activities, working in contaminated areas); to identify residents that consume locally caught fish or game, or both; and to to characterize confounding variables for mercury exposure.

The possibly mercury-exposed group was defined as people who, for at least one month before to the survey, resided, gardened, played, mowed grass, or worked in areas with mercury soil levels greater than or equal to 12 parts per million.

There were three comparison groups: Oak Ridge residents who lived in grids not known to be contaminated with mercury; neighbors of Scarboro residents with no history of eating local fish or game; and a group of city employees who did not work outdoors.

After the household questionnaire was completed, quantitative mercury exposed and were in the appropriate age group were also asked to provide biological samples and to complete a health questionnaire.

The urine sample was used to estimate inorganic mercury exposure while hair levels were considered to be indicators of organic mercury exposure.

Participants reporting the highest number of locally caught fish meals in the three months before the survey were asked to provide a hair sample.

The comparison group consisted of neighbors, or in the case of workers, other unexposed workers who reported not eating locally caught fish meals in the three months before the survey.

Biological sampling included 180 urine samples, 80 from residents and workers with a history of exposure to contaminated soils and 100 who were nonexposed participants.

Following testing, all values proved to be within the normal range reported in populations with no occupational, therapeutic or demonstrable exposure to mercury.

Hair samples were collected from 57 participants for whom exposure was recorded, 11 from those with a history of greatest ingestion of locally caught fish, and 46 from nonexposed individuals.

Consumers of locally caught fish had hair mercury concentrations comparable to those for nonconsumers.

Recommendations

The following recommendations were made at the conclusion of the 30-page report:

- Citizens of Oak Ridge should be informed of the low probability of harmful health effects from mercury as a result of current community exposure to mercury-contaminated soil and sediment.
- Current levels of the consumption of fish and other game caught in the vicinity of East Fork Poplar Creek have not resulted in elevated levels of organic

estimated for each person in a household.

Patricipants considered to be exposed who were ranked highest in one of the soil exposure pathways were asked to provide a first-morning urine sample and to complete a short questionnaire about their health.

Participants who ranked lowest in each pathway and who were, therefore, considered to be nonex-

ing conducted by the Oak Ridge Task Force have been completed, the fish ban along East Fork Poplar Creek should continue.

It is not yet known when the results of the fish testing will be available.

Study proves we're healthy

It has been confirmed again: Residence in Oak Ridge is not hazardous to health. Let those who would paint Oak Ridge as an environmental disaster area point their brushes elsewhere, or change the hue of the paint they would apply to Oak Ridge.

Study after study proves that Oak Ridgers have suffered no adverse health effects from the presence of the Department of Energy plants and the various substances used, spilled or stored there.

The most recent of these is the one prepared by the epidemiology program of the Tennessee Department of Health and Environment, and the Centers for Disease Control in Atlanta. This study on health impacts from mercury contamination in Oak Ridge finds no health impacts.

A few days prior to the release of the mercury study, a statistical analysis done by the Tennessee Department of Health and Environment disclosed that Anderson County's mortality rate is not only no worse than other areas' rates, but, in fact, is better.

The Oak Ridge population has been studied for health trends perhaps more than any other community in the country. No study of which we are aware has ever shown any cause for concern.

Oak Ridgers know this without a study, of course. The simple act of observation shows that this is a healthy town.

But some people in other areas — especially our neighbors in Knox County — are worried about us. They seem to believe — sometimes we think they even hope — that studies will demonstrate that the work being done here is a threat to us, and, by extension, to them.

Some remain unconvinced that we are not sick. This latest study may relieve some of their worries, at least regarding the presence of mercury in Oak Ridge. The study suggests that the main health threat of the mercury is the same as the threat posed by the accident at the Three Mile Island nuclear plant in Pennsylvania in 1979: Some people may worry themselves sick.

We don't mean to suggest by these comments that we approve of practices that permit mercury, chemicals, or radioactive substances to escape from plant operations into the environment. There are things here in the soil, water and air that should not be here. We encourage DOE and its contractors to expedite the clean-up of the local environment, and take every precaution to prevent future releases.

We do this with the understanding that the knowledge and technology of the future will be better than current knowledge and technology, and today's practices might be regarded as insufficient by future standards, as practices of previous decades are inadequate measured against today's standards.

We also do this in the belief that the population of Oak Ridge in those future years will be just as healthy as today's population.

Dr. Shirley Fry, left, director of Oak Ridge Associated Universities Epidemiologic Center, discusses the results of the mercury report with Dr. Diane Rowley, the lead researher for the report issued jointly by the Centers for Disease Control in Atlanta and the Tennessee State Department of Health and Environmental Sciences.

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The Oak Ridger

37TH YEAR—NO. 213 OAK RIDGE, TN., WEDNESDAY, NOVEMBER 13, 1985 25 CENTS

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concentrations were not at levels associated with known health risks, the report says.

The mercury study was initiated by a concerned citizens group after the government acknowledged in 1983 that 2.4 million pounds of mercury, used in weapons manufacturing at the Y-12 Plant, could not be accounted for.

Later federal officials acknowledged that as much as 470,000 pounds of the mercury might have been dumped into East Fork Popular Creek. Residents who live near the creek were the focus of the sampling effort.

Calling the report "good news," Bruner said it was the first step in cleaning up Oak Ridge's "massive environmental problems."

But Dr. Rowley cautioned that there are other "toxins that Oak Ridge is concerned about and that all of the questions concerning environmental problems in Oak Ridge have not been answered."

The report was received with some skepticism by at least two of the 40 people who attended the meeting held in the Municipal Building Courtroom.

But two others — both Oak Ridge City Council members — voiced some pleasure with the long-awaited results.

Report reaction

"I don't believe none of it," said Paul White, a resident of Scarboro and chairman of the citizen's group who called for the study.

White chastised the Department of Energy for "covering up" the loss of the mercury, he complained about the state taking so long to complete the study and accused city, state and federal officials of being "secretive." He also indicated he was irritated that the study wasn't presented first to the Scarboro citizens group since they were the ones who initiated the action.

(Continued on Page 6 No. 6)

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Mystery Material Makes Mercury Less of a Menace

10/24/84

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by FRANK MUNGER
News-Sentinel staff writer

OAK RIDGE — A mysterious tar-like substance may be the best news Oak Ridge has had since mercury became a household curse word 18 months ago.

Scientists have discovered that an as-yet-unidentified black material is attached to mercury found in the Oak Ridge environment, and it apparently helps block the toxic metal's pathway to humans and other living things.

It appears to be a situation in which one pollutant is reducing the effects of another.

"I think this is the first good news that we've had," said Dr. Geoffrey Gleason, senior analytical chemist at Oak Ridge Associated Universities.

Gleason, who works in ORAU's Environmental Surveillance and Monitoring Program, is largely responsible for the discovery.

He and Dr. Clayton Gist, senior ecologist in the program, reported their preliminary findings in an Oct. 15 memo to the Department of Energy. The News-Sentinel obtained a copy of that memo.

Gleason said the black material's presence may explain why researchers have not found the high levels of mercury they expected to find in plants growing in heavily contaminated soil. It also may have significant ramifications on future cleanup plans.

A number of experts on toxicity who have reviewed the Oak Ridge situation said they were surprised that the levels of mercury found in fish, plants and other life-forms weren't higher considering the amount of mercury in the environment.

"We've been wondering ourselves," Gleason said. "We've looked at numerous plants and animals because they were in areas we know are really high (in mercury). But we've found really, really tiny amounts in them. It just blew our minds that there would be such a distinction."

Ordinarily, one would expect to see a much greater transfer of mercury, he said.

DOE officials last year released a previously classified report showing that more than 2 million pounds of mercury could not be accounted for at the Y-12 nuclear weapons plant. About 475,000 pounds of mercury is believed to have entered the East Fork of Poplar Creek

please see MERCURY, page A3

Mercury

continued from page one

during the 1950s. The creek runs through the city and is posted as a health hazard.

Gleason believes the mystery material was formed by a combination of wastes dumped from Y-12 at roughly the same time the mercury was being poured into the East Fork.

If this phenomenon had not occurred, the mercury situation in Oak Ridge likely would have been obvious much earlier, perhaps through people getting sick, the scientist said.

"It looks like carbon under the microscope, but it's not that easy. It's going to take a lot of things. We'll be working with people at Y-12 and ORNL (Oak Ridge National Laboratory), all of us together and separately, on this problem."

Researchers have found the black material everywhere high concentrations of mercury have been measured in the soil around town. City workers unwittingly dredged the creek several

had it not been formed, mercury might have been identified in the form of other manifestations.

"Yes, it could have been through illnesses. If it had been dumped as just mercury and nothing to bind it, a lot of bad things could have happened."

The mystery substance strongly adheres to the mercury, and it would take a "very corrosive agent" to separate them, the scientist said. Numerous tests, using heat and hydrofluoric acid, have shown the difficulty of separating the mercury from the material.

"Nothing you're likely to find in the environment, such as acid rain, is likely to leach it," Gleason said. "At least, we now know that it (mercury) is pretty darn bound, and it's awfully difficult for it to get into the system and get into the food chain of man."

He said interaction with the material also has changed the form of the mercury, previously thought to be elemental mercury.

"That isn't it," Gleason said. "Ordinary liquid elemental mercury evaporates and will put mercury vapor in the air."

He said vapor pressure tests have shown no releases, but analysis is continuing to find out just what form the mercury has taken.

Scientists also are conducting analyses to determine what agents make up the black substance, an effort that so far has proved difficult.

"It could be some coal ash from the heating plant, it could be some organic chemicals that were dumped, maybe tar, probably some oil from pumps . . ." Gleason said. "You've got such a mishmash. I just have to assume this black matrix, whatever it is, came from the plant or from New Hope Pond (the point where Y-12 discharges enter the East Fork).

polluted dirt and used it on their gardens.

ORAU officials have analyzed more than 5,000 soil samples in Oak Ridge under a contract with DOE. Technicians long have recognized the darkness of the soil where mercury contamination is present, providing a stark contrast with uncontaminated Tennessee clay, Gleason said.

"We've gotten to where we can pretty much pinpoint the material that is likely to be in the hundreds of parts per million (of mercury)," he said.

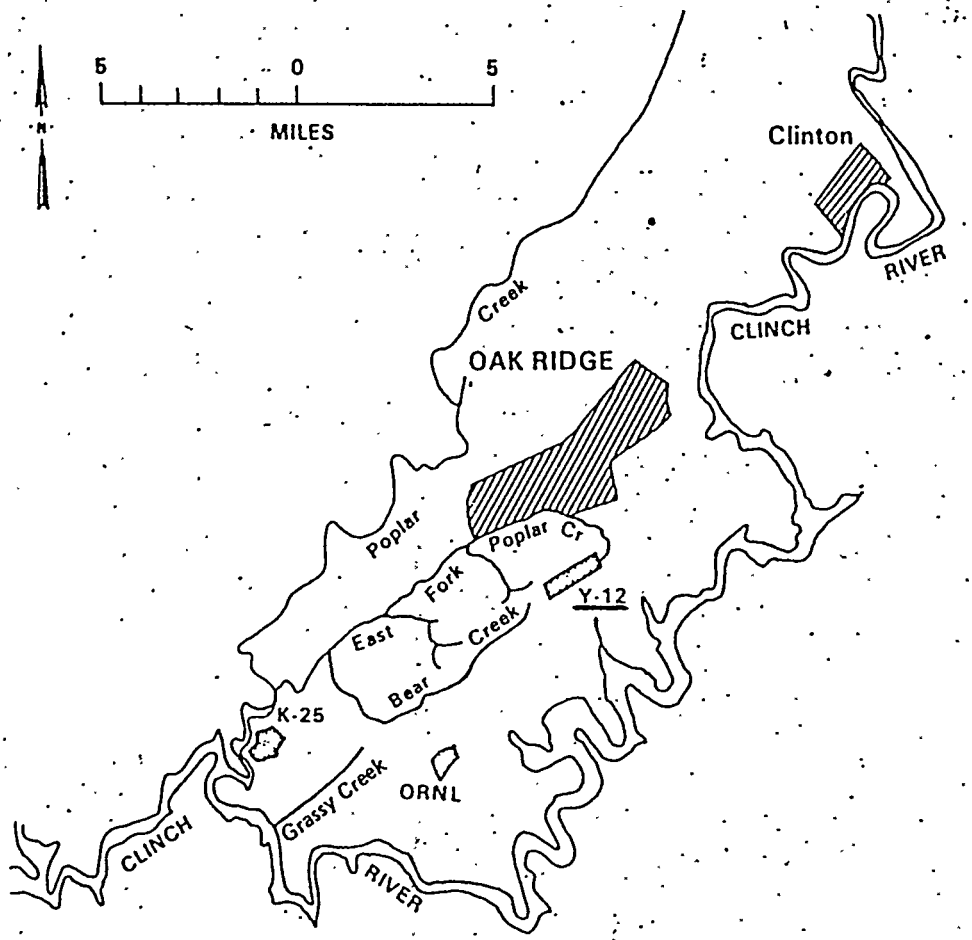
But when the dirt is separated from the black material, almost no mercury can be found in dirt, he said.

"The soil has virtually nothing in it," the chemist said. "Heretofore, everyone was intuitively convinced that the mercury was a resident in the soil itself and would be in a very viable mode, that it would move and be picked up by microorganisms, plants, that sort of thing."

But it took a long and detailed analysis to see what was happening, Gleason said, noting that the studies are still very preliminary and much work remains.

Nonetheless, he thinks the findings may have a profound influence on future decision-making on mercury contamination, especially as it relates to remedial measures. In fact, Gleason said he believes some of the actions already taken might have been avoided if people had understood the protective relationship between the black substance and mercury.

He points to the cleanup of mercury contamination at the Oak Ridge Civic Center, a job almost completed. Workers have removed much of the polluted topsoil and trucked it to a waste-burial site on a ridge overlooking the Y-12 plant. In hindsight, Gleason says this may have been unnecessary.



This map shows the rivers and streams near the Y-12 Plant.

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By CATHERINE F
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The Oak Ridger

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35TH YEAR—NO. 164—482-1021 OAK RIDGE, TENNESSEE, TUESDAY, SEPTEMBER 6, 1983 25 CENTS

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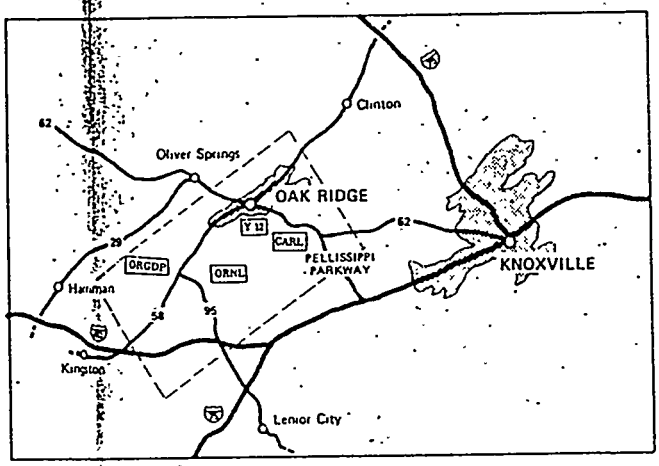


discharges, among others, and has experienced moderate pollution."

The reason, the report goes on, is that "accidental discharges of polychlorinated biphenyls (PCBs) and mercury have occurred in the past."

That, of course, is not news now, in light of DOE's revelation earlier this year that, over the years, 2.4 million pounds of mercury is unaccounted for from Y-12 Plant operations.

Both mercury and PCBs, according to the report, "are characterized as primarily residing in sediment deposits, persistent in the environment, bioconcentrated by living organisms in the food chain, and toxic to the biota."

Translated, that means that both mercury and PCBs tend to remain in the environment for a long time, can get into the food chain, and can be harmful.

"Sediment samples reveal that both Bear Creek and East Fork Poplar Creek have higher mercury and PCB values than control streams located in the vicinity," the report says. "Mercury concentrations for East Fork Poplar Creek ranged from 0.9 to 11.3 ppm (parts per million), while samples from Bear Creek were less than 1 ppm total mercury. The uncontaminated Grassy Creek (used as a control sample) contained less than 0.05 ppm total mercury. PCB values for East Fork Poplar Creek range from less than 0.1 ppm to 0.6 ppm as compared to less than 0.1 ppm reported for Grassy Creek."

DOE continues monitoring efforts throughout the Oak Ridge complex, using a network of stream sampling points and by sampling the point source discharges into the streams. "The stream samples are subjected both to radioactivity analyses and to chemical analyses," the report says.

It continues, "An indication of the relatively low level of pollution by radioactive materials" is the fact that "concentrations were less than the 0.1 percent of the concentration guide" in both streams.

But for nonradioactive pollutants, the picture painted by the report is quite different. DOE, however, claims "100 percent compliance" with state stream guidelines for chemical water quality, with the exception of the average fluoride concentration, which is 110 percent of the stream

(Continued on Page 7 No. 1)

• Number 2

La Grone

— From Page One

in November 1982, so this pathway is no longer considered a source of impact on man.

Data is also being collected to evaluate lesser potential pathways to the public, e.g., vegetables and airborne mercury. Concentrations found to date are very low. This information has been, and continues to be, supplied to the state for its evaluation and interpretation, and to EPA and to the public for their information. Research activities include sediment feeding studies by Oak Ridge Research Institute, and pathways analysis by Battelle Columbus Laboratories. All of the foregoing data and analyses have been furnished to Subcommittee staff members. There appears to be a consensus of the experts that there is no immediate threat to public health due to the mercury releases and the resultant contamination.

With regard to impact on DOE contractor employes, the evaluation of the impact of mercury exposures to Y-12 employes has included the following activities;

• Routine Physical Exam Program — During the years that the mercury was utilized (1953-1963), employes exposed to mercury were examined every six months for clinical observations of mercury toxicity. Employes were restricted from working in areas with potential mercury exposure if they had albuminuria, kidney problems, or hypertensions. Workers were removed from mercury exposure if urinalysis showed positive results for mercury exposure exceeding recommended levels.

• 1974 Urinary Bioassay Study — In July 1973, Dr. Zeb G. Bell, NIOSH mercury consultant, requested and received approval to do a bioassay study of Y-12 employes exposed to mercury. The study covered the period of from 1953 to 1966 and included use of the Y-12 urinalysis data, medical histories of employes, and follow-up physical exams that included parameters recommended by NIOSh personnel. None of the employes in the study exposed to mercury showed any chronic effects of mercury exposure.

• DOE Health and Mortality Study — Oak Ridge Associated Universities is under contract to DOE to conduct the DOE Health and Mortality Study to determine what effects working with radiation and radioactive materials has had on workers at DOE facilities. The original scope of the study, initiated in 1964, was changed to include exposures to industrial chemicals also. While the study is not yet completed, ORAU conducted a preliminary analysis of mortality among Y-12 workers due to the current interest in Y-12 mercury exposures. This analysis showed no statistically significant evidence of symptoms of exposures to mercury, or statistically significant evidence of unusual mortality rates.

• Evaluation of Workers Currently exposed to Mercury — Y-12 workers currently having a potential for exposure to mercury, through working in mercury contaminated process buildings, continue to be monitored by Y-12 health protection activities. Air in workplaces formerly associated with mercury processing is continuously monitored, and contamination levels in air continue to be well within acceptable levels. No evidence of adverse health effects has been observed.

• Mercury Workers Follow-up Study — Union Carbide is developing a protocol for a follow-up and expansion of the 1974 study utilizing new techniques and outside consultants to determine whether, 20 years after mercury exposure, there have been effects.

QUESTION 4 — If the mercury lies in the sediment bed of East Fork Poplar Creek, should it be dredged out, and if not, why not?

ANSWER — Whether dredging of East Fork Poplar Creek to remove mercury deposits is an appropriate action is expected to be considered by the Interagency Task Force in detail. Consideration will be given to whether greater environmental damage might result from the dredging activities, possibly resulting in a redistribution and dispersion of the mercury, than from leaving it in place. In a somewhat similar situation at Saltville, Va., the decision was not disturb the mercury deposits. DOE has no position on the question, except that it will await the recommendation of the Task Force.

July hearings follow-up — 4

No mercury sampling discrepancy

Editor's note — After Joe. La Grone, manager of the Department of Energy's Oak Ridge Operations, testified before a congressional subcommittee hearing in Oak Ridge on the mercury situation here, he was sent 39 questions relating to his testimony. The Oak Ridger has obtained from DOE a copy of the subcommittee's questions and La Grone's answers, which are being published in a five-part series. This is the fourth.

QUESTION 25 — DOE and the city of Oak Ridge obtained different results for Hg content when sampling the backfilled sewer line recently. Can you explain the apparent discrepancy and its significance for DOE's monitoring program?

ANSWER — There is not really a discrepancy. The results referred to in the question represents samples taken in different locations and by different sampling techniques. The mercury contamination has been found to be unevenly distributed, and sampling locations a foot apart may yield significantly different results. When samples were taken by ORAU in the same vicinity as those taken by the City of Oak Ridge, sample analysis results agreed within +/- 15 percent, which is within expected variations.

As a quality assurance check, on a random sample basis, ORAU has been determining mercury by neutron activation analysis, the results of which have shown excellent agreement with the results of the chemical procedure. In addition, ORAU has split samples with the State of Tennessee for independent analyses. The ORAU analyses were slightly higher than those by the State of Tennessee, but still in good agreement therewith.

Since there have been no real discrepancies noted, when sample analytical results have been compared on a proper basis, we consider that the differences previously noted have no real significance, other than to confirm the accuracy of the

(Continued on Page 7 No. 7)

driness, using it as a weapon and a shield. Being new has its advantages, too. La Grone freely admitted problems of the past for which he carried no blame. He promised solutions and challenged his critics to grade him on the results.

He said he did not know why the public was not told of decades-old environmental breaches, why the government had apparently hidden the worst with classification. But he vowed to install a new era of openness.

"Let's concentrate on the present," he said.

By mid-June, La Grone had completed one lap on the lecture circuit, easing concerns among residents with new information his staff worked overtime to provide. Soil and water tests were offered to Oak Ridge homeowners worried about mercury in their yards, gardens and wells. DOE paid the bills.

La Grone signed a "memorandum of understanding" with the state Health Department and the U.S. Environmental Protection Agency. It outlined preliminary steps for a Y-12 cleanup. A multiagency task force, including the Tennessee Valley Authority and the U.S. Geological Survey, began developing plans for a comprehensive pollution study expected to take up to three years and cost $2 million. Again, DOE is footing the bills. A 10-year-old idea for a pollution control center at Y-12 finally got off the drawing board.

"Platitudes are nice, but sooner or later people expect and deserve some actions," La Grone said.

Progress was being made. But new problems were popping up.

One afternoon a couple of weeks ago, La Grone leaned against a wall in a hallway at the Oak Ridge Federal Building. He

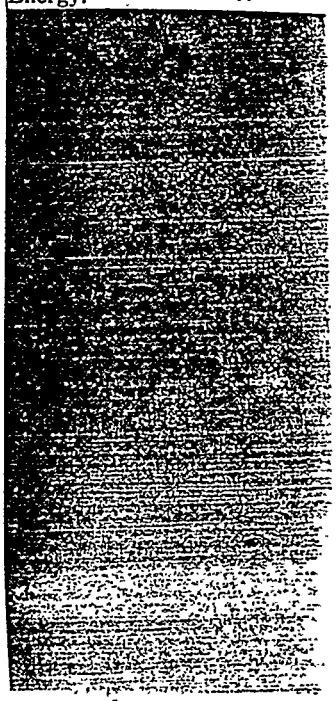
sional hearing in which mercur and other pollution problems Y-12 came under scrutiny, DO was chastised for its careles handling of materials and fo concealing problems too impo tant to hide.

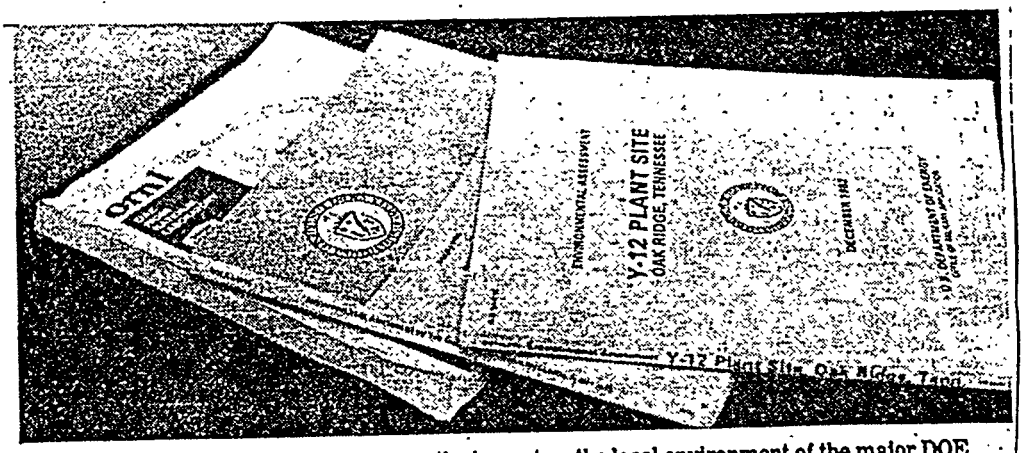
La Grone, however, was cor sistently praised for his leader ship, his candor and his commit ment of the agency's resource to cleaning up the environmenta mess.

Afterward, as he walked to hi car in a nearby parking lot, he li a cigaret and reflected on th personal burden of living up t expectations. La Grone said h was aware that if he were caugh in a lie, if his programs didn' work, if things didn't get better. criticism would be stronger than the earlier praise.

"That's the way it should be," he said. "I wouldn't have it any other way."

La Grone is betting on himself, and so is the Department of Energy.





These are the three reports that assess the impact on the local environment of the major DOE installations here.

• Number 1

Environs

— From Page One

guidelines. The report goes on to suggest that the high fluoride concentration is coming from "the fluoridated water supply from the Oak Ridge Water Treatment Plant. This situation serves to illustrate the consequences of seemingly contradictory regulations set by various governmental agencies."

One of the elements examined in the East Fork Poplar Creek chemical water analysis is mercury, and, according to the report, the mercury levels in the creek were less than 20 percent of the standard, bringing those levels well into compliance with state regulations. The actual figures, according to the report, range from a maximum of 0.002 parts per million to less than 0.0005 ppm. Later figures, issued in August, show mercury levels at about the same level in East Fork Poplar Creek, but the floodplain soil sediment shows levels of 220 ppm.

The report suggests that mercury and PCB levels in the sediment are not high enough to warrant dredging the streams to remove the sediment. "It seems that these stream sediments may be left intact without hazard to the surrounding environs," the report says.

DOE is continuing to monitor fish in the affected streams, the report points out. "Fish analysis for mercury reveal flesh samples are close to the 0.5 ppm guideline," the report says, quoting 1978 data. More recent data show that a number of fish have surpassed that guideline. "Likewise, PCB values in fish flesh show little bioconcentration of the compound," the report says.

It continues, "Impacts on aquatic organisms in the streams of the reservation are significant because the concentration of some chemicals exceeds the recommended maximum limit for the protection of aquatic biota. The absence of many sensitive organisms and the abundance of pollution-tolerant species indicate degraded water quality. Efforts currently under way will improve the quality of the water and may minimize, but not eliminate, the adverse effects on aquatic life because of other pollution point sources in the area. Past operations have caused measurable concentrations of some heavy metals (e.g., mercury) in sediments of some of the tributary streams and the Clinch River, resulting in elevated levels in fish and macroinvertebrates. These effects will persist for many years."

Next — What's the worst that could happen? Postulating worst-case accidents at Y-12.

36TH YEAR—NO. 16—482-1021 OAK RIDGE, TENNESSEE, FRIDAY, FEBRUARY 10, 1984

• Number 1

— Miami Herald —

— From Page One

Frank D'Itri, a water pollution expert from Michigan State University, was summoned for advice. After surveying the scene, he dismissed mercury as an immediate health hazard. He speculated that the worst dangers probably were encountered during the 1950s and 1960s when mercury spills were common and workers breathed the toxic fumes. Much of the mercury that entered the main Y-12 drainage ditch and flowed into the East Fork — an estimated 475,000 pounds — has since been covered with silt and slowly moved miles and miles into the Clinch River and downstream reservoirs, D'Itri said.

"It's Mother Nature's way of taking care of things," he said.

But, based on his tour of Y-12 nuclear waste sites and a review of available data, D'Itri lectured DOE officials for their on-going use of obsolete and unsafe disposal practices.

"The magnitude of some of these boggles my mind," he said. "They're destroying the groundwater resources of the state of Tennessee."

Simply put, Y-12 has been meeting contemporary environmental standards by flushing plant waste with tons of water, greatly reducing the available readings of the pollutants at any one time.

"The solution to pollution is dilution," D'Itri mocked at plant officials, accusing them of using "the best available technology for 1945."

found the ever-present supply of antacids in his pocket, unwrapped one and chomped on it as he talked about the latest controversy. More than 1,700 pounds of bomb-grade uranium was missing from Y-12 inventories, published reports had said. Television crews were waiting in the lobby.

La Grone did not confirm the uranium inventory figures; under law he could not because the documents were still classified "secret."

But he said nothing to dispute their veracity. His comments pointed to the lack of evidence that any special nuclear materials had been stolen. He said he was "reasonably comfortable" none had. Of course, no one could be certain, he added.

As usual, La Grone handled the cameras and mikes with skill, giving better answers than some of the questions deserved. Afterward, he huddled briefly with Wayne Range, DOE's chief public information officer and a veteran of 25 years in Oak Ridge.

"How'd I do?" La Grone asked.

Range nodded affirmatively.

To say Joe La Grone is not image-conscious would be absurd. To say he has not been effective would be a lie. He likely has handled more crises in less than a year than his predecessors did in four decades.

• White Oak Lake was labeled the most radioactively polluted lake in the country. The 24-acre

• Number 8

— Contamination —

— From Page One

teen radionuclides were added to the list for the Oak Ridge survey.

Jim Alexander, DOE spokesman, said that all the contaminants detected will be evaluated "to give us some idea on the standpoint of hazard and toxicology."

For comparison purposes samples were collected at an area along Poplar Creek near Oliver Springs. This was selected because it is upstream of Y-12. Y-12 is considered the source of the pollution, said Wayne Hibbitts, of DOE's environmental protection office.

Twenty-six contaminants were detected at Poplar Creek.

"As a scientist I would like to say it's not surprising to find contaminants in urban soil," Turner said. He added, "I am not alarmed."

Turner and Hibbitts explained that there are in fact more than 140 pollutants. "The (EPA) list itself is a misnomer," Turner said. He added that there are classes of subcompounds that fall within the list. "Some are worrisome and some are not, but there are more than 126 or 140."

Hibbitts said, "There are thousands of chemicals excluded from the list ... but the list was a good way of coming up with a comprehensive look at what we have in the environment."

TVA submitted the list to DOE. Sampling was conducted by ORNL and analyses by TVA and Y-12. "We volunteered to do whatever sampling needed to assure ourselves that we know what is out there," Hibbitts said.

"We really can't reach any conclusions at this point," Hibbitts said. "And that's the bottom line."

12. Hibbitts said certain discharges from that facility might account for other pollutants in the environment that are not included on the EPA list.

Analyses on the other 15 are not yet complete, Hibbitts said.

Latest mercury reports

Elevated levels of mercury near the Civic Center continue to be detected, but results of other soil samples indicate that the playground area at the Civic Center will not warrant additional study.

Seven soil samples taken from the playground were less than 1 part per million (ppm), and one sample was 1.1 ppm.

The state department of health and environment established a guideline of 12 ppm last fall. Levels above the guideline warrant additional evaluation.

The Department of Energy released additional results today of recent soil sampling for mercury in Oak Ridge. The study is part of an on-going effort to evaluate the Oak Ridge environment.

Last spring DOE disclosed that 2 million pounds of mercury was unaccountable during a 20-year period beginning in the ear-

Joe La Grone remembers the war from radio reports at his family home in Deadwood, Texas. His family was poor. They burned cow chips to smoke away mosquitos in the summer. They burned them for heat in the winter. His parents were news watchers. They listened to the radio and read the Houston newspapers. La Grone learned from them.

La Grone is 43, handsome, articulate and big. At six feet, four inches and 200-plus pounds, he has a powerful presence. His size intimidates listeners, and his smooth manner disarms them. He wins friends easily.

When La Grone came to Oak Ridge as DOE manager last April, he was a rising star in the agency's bureaucracy. He had filled ranking positions at DOE headquarters in Washington and for several years had headed its operations in San Francisco. But he was bored on the West Coast. He says he ran out of challenges.

"It was no longer fun," he said.

The challenges, of course, were waiting in Oak Ridge. La Grone probably had no idea how many. By the time he arrived, the pollution story had begun to unfold. The state had posted the East Fork as a health hazard and was demanding changes at Y-12.

La Grone was in town for the bombshell DOE released in May, when its declassified version of a 1977 report told the public that 2.4 million pounds of mercury was lost or unaccounted for at the weapons plant.

The manager worked quickly. Call him Joe, he told everyone. He w[illegible] sports shirts and subordinates loose[illegible] their ties. Other changes were more sustantive.

"An[illegible] time you let go of 2.4 millio[illegible] pounds of mercury, there [illegible] problem," La Grone said [illegible] think I'd be less than ca[illegible] [illegible]ried to tell you there wa[illegible]

He [illegible]ides himself on his candidness, using it as a weapon and a shield. Being new has its ad-

runs through the nuclear burial grounds at Oak Ridge National Laboratory, a multi-purpose research facility. State health officials want DOE to drain and close the lake or come up with a plan to keep it from further polluting the Clinch River.

• A DOE contractor was found guilty of using government funds to help build and staff its exhibit at the 1982 World's Fair in nearby Knoxville. Science Applications Inc. was allowed to keep its contract for managing the American Museum of Science and Energy but received a stern reprimand and was forced to restructure its operation and repay the government.

• Security guards at Y-12 went on strike for two weeks in November, returning to work reluctantly when ordered by their national union chief. Subsequent reports detailed weaknesses in plant security, and DOE spent more than $200,000 in a four-month period bringing outside teams to Oak Ridge to train and support plant forces.

In addition, cultivated marijuana crops were found in the woods near Oak Ridge National Laboratory, a guard was wounded when live ammunition inadvertently was mixed with blanks during a training exercise, and a professional gambling operation was uncovered at DOE's uranium enrichment plant.

Despite the problems, La Grone maintains the confidence of DOE headquarters. Perhaps the best evidence of this came when Energy Secretary Donald Hodel dumped the nation's emergency oil supplies in La Grone's lap, shifting the project headquarters from New Orleans to Oak Ridge. The strategic petroleum reserve was under investigation by Congress, with a long list of mismanagement and misconduct allegations. La Grone is supposed to straighten it out. He's still working on it.

At last summer's congressional h[illegible]ring in which mercury and oth[illegible] poll[illegible]tion problems at

a guideline of 12 parts per million for levels of mercury in soil. It took members of the epidemiological division more than six months to identify 12 parts per million as the level above which evaluation is suggested.

Similar processes will be necessary for each of the other contaminants detected where no standard or guideline exists. There are few guidelines or standards set for most of the contaminants and steps to evaluate the significance of the contaminants and their levels will be time consuming.

"Because there are few, if any, guidelines for the contaminants this is a best guess effort as to what is significant," Hibbitts said.

Hibbitts said that the Center for Disease Control in Atlanta, working with the state health and environment epidemiological division, will also review the sample findings. A body burden survey of residents in Oak Ridge is planned for this spring in an effort to determine health effects of exposure to pollutants. Body burden surveys are established from blood samples and urinalysis to determine levels of mercury in the body.

Hibbitts said that 15 additional contaminants were recently added to the TVA list based on comments from personnel at Y-

Other areas near the Civic Center, including the fitness track, were sampled at various depths. Thirty-three samples had levels above 12 ppm.

The highest level detected at a depth of surface to three inches was 22 ppm. The largest number of samples above 12 ppm were found in this depth range. In the three to six-inch depth the high level was 180 ppm; and at the six to nine-inch range 110 ppm was the highest level. A total of 59 samples were collected in mid-January.

Seven soil samples from a South LaSalle Road location were collected. The highest level was .09 ppm. Soil from Indian Lane was .08 ppm.

Of the 61 soil samples collected at various depths at the Civic Center 41 were above the 12 ppm guideline.

The interim study group is in the process of identifying areas in the city that require additional study. The Civic Center is one area, said Jim Harless, a member of the study group.

Horse manure and walnuts at a Wiltshire Drive location were analyzed for mercury levels by the Oak Ridge Associated Universities. ORAU collects and analyzes soil samples for DOE. Levels of less than .03 ppm were detected in the manure, with .01 ppm detected in the walnuts.

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La Grone

— From Page one

monitoring program in effect. Proper quality assurance checks will continue to be made on all aspects of the monitoring program.

QUESTION 26 — Has DOE made any effort to locate or sample residential groundwater wells after testing revealed on-site groundwater contamination? If not, why not?

ANSWER — ORO has performed sampling on four wells, two house wells where the water is used for human consumption and two farm wells that are not in use. The ORAU results for the home wells were less than 0.1 ppb mercury for both; the ORAU results for the farm wells was less than 0.05 ppb for both. ORAU increased its analysis sensitivity by a factor of two during the three months between sampling the home wells and the farm wells. An analysis of the same samples by Stewart Laboratories showed less than 1 ppb mercury for all samples. One of the residence wells contained lead slightly exceeding drinking water standards, and the other residence well exceeded secondary drinking water standards for color, manganese and iron. These secondary standards relate only to the aesthetic qualities of the water. While we have no reason to suspect continuity between Y-12 groundwater and these wells, we will be following up on the data. In particular, we will be coordinating additional sampling with the City of Oak Ridge since these residences are near a former municipal sanitary landfill.

QUESTION 27 — What efforts will DOE undertake to monitor the movement of spilled mercury under the Y-12 Plant, knowing that encounters with acidic groundwater could decouple mercury from soil? Could you provide a detailed prospectus on how DOE intends to monitor the Oak Ridge area to make sure that the biomethylation or uptake of mercury does not increase in the future through changes in bacterial populations or water quality changes making certain reaches more hospitable to fish (or larger fish)?

ANSWER — It is the opinion of our hydrogeologic experts that there is little probability, considering the nature of the East Tennessee geologic formation, that there is acidic groundwater under Y-12. As I mentioned in my statement for the record, I am informed that monitoring the movement of mercury in East Tennessee geologic formations is very difficult. We have, however, undertaken an extensive drilling program in an attempt to locate mercury deposits or contaminated groundwater. The State and EPA commented on our drilling plan, and their suggestions have been factored into our program.

With regard to future levels of mercury in fish, it is impossible at this time to provide a detailed monitoring prospectus. The Interagency Task Force will be addressing long-term monitoring needs, and will factor biomethylation into its remedial measures recommendation. For DOE to try to now to develop a separate prospectus would be inappropriate, since we are participating in the Task Force. When the monitoring program is issued by the Task Force, a copy will be provided to the Subcommittees.

QUESTION 28 — Whose decisions at DOE resulted in the ORNL scientists conducting extensive research projects in Virginia and Spain on mercury effects, but not in the Oak Ridge environs?

ANSWER — The work in Virginia was a National Science Foundation funded project under an interagency agreement, between the National Science Foundation and the Department's predecessor agencies. It orginated on the basis of a proposal from the Oak Ridge National Laboratory, submitted to Oak Ridge Operations for transmission to NSF. Since the work proposed was closely related to the agency research program on trace elements in the environment, ORO concurred in ORNL undertaking this work.

The project in Spain was also funded by the National Science Foundation. It was part of an international assistance program with Spain that included work to define the magnitude of the health and environmental problems associated with mercury mines in Spain. NSF specifically requested ORNL assistance through the Energy Research and Development Administration, one of our predecessor

0.14 (1982). Statistical analysis will continue to be applied to the data at hand, and to that subsequently acquired, to determine any trends of changes as a function of time. It is expected that this will also be a matter for consideration by the Interagency Task Force.

QUESTION 31 — What was the extent of DOE's involvement in or knowledge of ORNL's actions in the Stephen Gough incident, including the decision to demand the return of samples and notes from OSGS and the subsequent "freeze" imposed on mercury data collections?

ANSWER — I am not aware of any DOE involvement or knowledge before the fact of ORNL's actions regarding Steven Gough. You will recall, however, that I have specifically requested DOE's Inspector General, supported by ORO's Office of Performance Evaluation, to make a complete inquiry into the Gough matter. I will make the results of that inquiry available to the Subcommittees.

On July 19, 1983, I requested that ORNL management remove from Mr. Gough's personnel file any written reprimand related to Mr. Gough's taking of environmental samples near the Y-12 Plant in December 1981. I made the request because I do not believe the reprimand was necessary or appropriate, considering Mr. Gough's activity and the circumstances. ORNL management agreed to the removal of the reprimand, and we have so informed Mr. Gough.

QUESTION 32 — Can you explain why the draft 1982 EIS for Segment O analyzed radionuclide effects from possible dredging of Clinch River sediments, but made no mention of mercury in these sediments? Who was involved in the decision

technical expertise was available, this assistance to NSF was approved at both ORO and Headquarters.

Why ORNL capability was not brought to bear more directly and to a greater extent on the Y-12 situtation is not clear to me.

QUESTION 29 — Why did the Elwood report not study the EFPC, when DOE knew that process wastes were one major source of Hg releases? Why was the Elwood report designated "business confidential"? Who was involved in these decisions at DOE?

ANSWER — As I mentioned in my statement, "the Elwood Report matter is one of the particular areas where I have requested a full inquiry by DOE's Inspector General, supported by ORO's Office of Performance Evaluation. When the results of that inquiry become available, I will gladly furnish them to the Subcommittees.

QUESTION 30 — What significance, if any can be attributed to the slightly higher Hg values in fish taken in 1982 than the 1976-77 readings? Will attempts be made to generate trend analyses of Hg uptake?

ANSWER — No significance can be attributed to the slightly higher fish values from a statistical standpoint. Statistical analysis of the pooled data from 1976, 1977 and 1982 provide no basis for a conclusion that levels are either decreasing or increasing with time. In the pooled 1976/1977 fish data from the area near the East Fork Poplar Creek/Poplar Creek junction, there were 3 fish over 1.0 ppm, compared to 3 in the 1982 group. Averages were 0.38 (1976), 0.32 (1977) and 0.44 (1982). In the pooled data for the area near Poplar Creek/Clinch River junction, there were 4 fish over 1.0 ppm in 1976, 1977 versus none in the 1982 group, and the averages were 0.41 (1976), 1.25 (1977) and

ANSWER — I am informed that the draft EIS for Segment "O", on the bank of the Clinch River opposite the Oak Ridge Gaseous Diffusion Plant, analyzed radionuclides in sediments of the Clinch River because radionuclide concentrations were considered to be a potentially sensitive health and safety topic, one that deserved examination in the EIS. I am also informed that there was no intentional restrcition of the scope of the EIS to exclude consideration of mercury in the sediments. It, reportedly, was not even the subject of discussions or exchanges among Battelle Columbus, DOE and Union Carbide because its presence at those concentrations in the Clinch River was not perceived as a potential problem. There apparaently was not a conscious deletion or elimination of coverage of mercury in Clinch River sediments in the EIS; it simply was never considered or mentioned by those involved in scoping and preaparing the EIS as a topic for inclusion, except as regards Poplar Creek. DOE furnished Battelle and Koppers information about mercury concentrations in Poplar Creek because of the potential for a bridge across Poplar Creek. Analysis of a railroad crossing of Poplar Creek was deferred in the draft EIS because Koppers had not chosen from among three routes, two of which would not have crossed Poplar Creek. Analysis of a Poplar Creek crossing would have caused mercury to be a topic in the EIS, because of the higher concentrations in Poplar Creek than in the Clinch River.

If the EIS were being prepared today, because of the public interest in mercury contamination, I have no doubt that the matter of the presence of mercury in sediments would be addressed.

July hearings follow-up — 1

DOE manager answers ques

Editor's note — Joe La Grone, manager of the Department of Energy's Oak Ridge Operations, testified on July 11 before a congressional subcommittee hearing in Oak Ridge on the mercury situation here. Rep. Marilyn Lloyd and Rep. Albert Gore co-chaired the hearing. A month later, La Grone was sent 39 questions relating to his testimony. The subcommittee will include his answers in its final report, which is expected to be issued in October. The Oak Ridger has obtained from DOE a copy of the subcommittee's questions and La Grone's answers, which will be published in a five-part series. This is the first.

QUESTION 1 — As the Oak Ridge Operations Manager, do you feel that the Oak Ridge National Laboratory, which carries out many programs under my Subcommittee's jurisdiction, is complying with all Federal and state environmental requirements in terms of the release of effluents at White Oak Dam? Would you note whether there is any significant difference in compliance with respect to radiological versus non-radiological releases?

La Grone

Rep. Lloyd

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ions posed by Congress subcommittee

Rep. Gore

R — While we believe, RNL is in compliance iological standards, State of Tennessee and re reductions in the radioactivity level of the effluent leaving White Oak Dam. However since more than 90 percent of the radioactivity in the effluent is attributable to old burial operations and contaminated stream and lake sediments, resolution of the probelm is not a simple matter. DOE has spent more than $50 million over the past 10 years on corrective measures to reduce the levels of radioactivity released to the environment at White Oak Dam, and a great deal of money, effort and research will continue to be devoted to reducing these radioactive effluent levels. Because of the complexity of the problem, improvements will be slow, but they should be generally continuous.

With regard to non-radiological discharges, effluents from White Oak Lake are routinely monitored for several non-radiological contaminants and the effluents have been well within standards. No concentrations above the limit of detection have been measured for mercury, chromium and zinc. The limit of detection is 20 percent of the Tennessee stream guideline. Nitrate concentrations are also measured, and the highest reading was 72 percent of the Tennessee stream guideline of 10 ppm (parts per million).

The state and EPA just recently concluded a compliance evaluation of ORNL. Based on our discussions, we expect that White Oak Dam will be considered as a NPDES permit location with appropriate parameters. The compliance report is expected by mid-September.

QUESTION 2 — Insofar as there is mercury contamination of ground water in the vicinit the Y-12 Plant, what is the st of monitoring such mer levels?

ANSWER — An extensiv fort has been underway for past three months characterize the undergr mercury situation at Y-12. effort began with the award contract for a ground w analysis study, and has bee panded with the award of a tract for a drilling progra locate mercury deposits an contaminated ground w

(Continued on Page 9 No

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