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STATE OF GEORGIA
COUNTY OF CAMDEN

IN RE: NSB Kings Bay, Georgia
Public Information Session
Number 5.

COPY

Public meeting and hearing, taken September 2, 1993
in Camden County, Georgia, at the Crooked River
Elementary School, commencing at 7:10 p.m. and
concluding at 7:58 p.m. Reported by Margaret G.
Jancse, CCR, B-1364.

APPEARANCES:

PRESENTERS:

CAPTAIN MIKE O'NEIL
COMMANDING OFFICER, SUBASE

CAPTAIN LEN SCULLION,
PUBLIC WORKS OFFICER
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1 (September 2, 1993, 7:10 p.m.)

2 (SLIDE 1)

3 MR. SCULLION: Good evening, ladies and gentlemen,
4 and thank you for joining us again this evening. I am
5 Captain Len Scullion, the Public Works Officer for the
6 Naval Submarine Base at Kings Bay.

7 We appreciate your continuing support and
8 involvement in our joint efforts to identify and correct
9 the environmental concerns associated with the affected
10 groundwater at the Old Camden County Landfill.

11 With us this evening is Captain Mike O'Neil, the
12 Commanding officer of the SUBASE; Bob Steller, who is
13 our Public Affairs Officer; and Lieutenant Commander
14 Mike Patterson, who is the Assistant Public Works
15 Officer in the environmental field.

16 From the City of St. Marys is Mr. Mike Mahaney.
17 Mike is the City Manager.

18 Representing Southern Division Naval Facilities
19 Engineering Command, our parent engineering
20 organization, is Ed Lure (phonetic), the Remedial
21 Project Manager for this work.

22 With us here this evening for the first time since
23 we've had these public information sessions are three
24 representatives from Georgia Department of Natural
25 Resources, Environmental Protection Division, Mr. Jim

1 MR. SCULLION: (Cont'd) Ussery, Mr. Bruce Khaleghi
2 and Ms. Madelaine Kellam. We appreciate your being here
3 tonight. It's a sincere thank you for participating.
4 These folks were down today for our Technical Review
5 Committee session that we had all afternoon.

6 Also with us this evening is Bud Zinner (phonetic).
7 Bud is a hydrologist with the U.S. Geological Survey
8 Group.

9 From ABB Environmental, we have Frank Cater, who is
10 our Project Manager. Frank will be sharing the
11 presentation duties with me this evening. And with
12 Frank is Tracey Keel. We'll be seeing a lot of Tracey
13 over the next eight or nine months or so. He'll be the
14 resident engineer on site for the Interim Measure
15 remediation pilot skill program.

16 Laura Harris, who has been the field technical
17 advisor and geologist, had the technical lead on the
18 field investigatory work.

19 Willard Murray, who's a senior hydrologist. Nancy
20 Rouse. Nancy is a senior scientist and community
21 relations director.

22 We also have here this evening Dick King. Mr. King
23 is a resident and also a member of the Technical Review
24 Committee.

25 I'm afraid we outnumber the interested folks this

1 MR. SCULLION: (Cont'd) evening, but we're going
2 to go through the formal presentation which you have as
3 a handout.

4 (CHANGES TO SLIDE 2)

5 MR. SCULLION: The purpose of tonight's meeting is
6 to provide an overview of the past year's information
7 sessions and provide you with a summary of our current
8 investigations. We also want to discuss with you the
9 next investigative actions we will be proceeding forward
10 with and the Interim Measure.

11 Let me define an Interim Measure for you. As you
12 know from the fact sheet which was handed out to the
13 residents, there are phases in the process which we are
14 following. These are regulatory required phases. One
15 of those phases is an Interim Measure. This is an
16 action that's designed to contain or remove a source of
17 contamination or to prevent or begin to control the
18 release of a substance into the environment.

19 As always, at the end of tonight's presentation, we
20 will take your questions and comments. If you find you
21 have questions as the presentation goes along, please
22 use your handout to write down your question at that
23 point. We are asking you to wait until the discussion
24 portion because we feel that we will answer many of your
25 questions as we go through the full presentation.

1 MR. SCULLION: (Cont'd) How many of you here this
2 evening are here for the first time in one of our public
3 information sessions?

4 (SOME INDICATIONS)

5 MR. SCULLION: Okay. So the background will
6 certainly help you. We'll spend a few minutes giving
7 you an overview of the background of how we got to the
8 point we are tonight. Then we'll develop where we're
9 going.

10 (CHANGES TO SLIDE 3)

11 MR. SCULLION: One year ago tomorrow we came before
12 you with our first public information session. In this
13 meeting, we informed you that we had detected vinyl
14 chloride and other solvents in the groundwater along the
15 western side of Spur 40 across from the Old County
16 Landfill.

17 Groundwater is the description we use to describe
18 the water that is present beneath the surface of the
19 land. In this area, this water starts at a depth of
20 approximately six feet below the ground surface and
21 continues to a depth of 90 to 100 feet below the ground
22 surface. This is the shallow groundwater which we will
23 refer to this evening.

24 Our drinking water is mined from wells that come
25 from a layer 300 to 600 feet below the ground surface.

1 MR. SCULLION: (Cont'd) This layer of water is
2 separated from the shallow groundwater by an impervious
3 layer of soils that inhibit the mixing of the two layers
4 of water.

5 We also advised you last September that we were
6 going to continue our investigations and move as rapidly
7 as possible to answer questions concerning the health
8 effects and the possible solutions to this environmental
9 issue.

10 On October 15th, 1992, we held our second public
11 information session. At this time, we distributed
12 private well questionnaires and private property
13 sampling permission forms. We also advised the
14 residents of the subdivision as to the investigative
15 techniques that we were going to use. We described
16 equipment and how the equipment operates.

17 (CHANGES TO SLIDE 4)

18 MR. SCULLION: On December 17th, 1992, SUBASE and
19 the City held their third public information session.
20 During this session, we provided the residents with the
21 results of the private irrigation well sampling and the
22 sampling results of the groundwater on private property.
23 We also provided an update of our interpretation of the
24 affected groundwater. This interpretation was based on
25 the knowledge we had at the time.

1 MR. SCULLION: (Cont'd) On May 13th of this year,
2 we held the fourth public information session. During
3 this meeting, we provided you with the status of our
4 further investigations and the results of our human
5 health screening risk evaluation. We also told you of
6 our preliminary plans for our next steps.

7 (CHANGES TO SLIDE 5)

8 MR. SCULLION: This brings us to tonight's
9 presentation. As I mentioned earlier, we are here to
10 provide you with a summary of our current investigation,
11 our next investigation actions and talk about the
12 Interim Measure process.

13 (CHANGES TO SLIDE 6)

14 MR. SCULLION: As I told you last year, the Navy is
15 pro-actively moving forward with these environmental
16 issues, especially the one at the Old County Landfill.
17 We have accomplished much in the past year. And we
18 would like to thank everyone, the residents, the general
19 public, our local officials and Georgia Environmental
20 Protection Division for their help and expedient
21 reviews. This rapid progression of accomplishments
22 could not have been accomplished without full
23 involvement.

24 (CHANGES TO SLIDE 7)

25 MR. SCULLION: During the past year, we have

1 MR. SCULLION: (Cont'd) accomplished the
2 following. We've defined the limits of the groundwater
3 affected by the solvents. We've received concurrence
4 from Georgia Environmental Protection Division on our
5 Interim Corrective Measure Screening Investigation. As
6 many of you remember, this was the investigation that
7 occurred last fall. The Human Health Preliminary
8 Screening Risk Evaluation has been completed and
9 accepted by the Georgia Environmental Protection
10 Division. And then important teaming processes
11 occurred. The Navy, local officials, general public,
12 the Georgia Environmental Protection Division, the
13 United States Environmental Protection Agency, Region 4
14 out of Atlanta and, most importantly, you have all been
15 working together toward a common goal. This was really
16 exemplified this afternoon when we held our Technical
17 Review Committee which is a cross-sectional
18 representative of all those entities.

19 (CHANGES TO SLIDE 8)

20 MR. SCULLION: So what are our next steps? Where
21 are we going? First, we must complete our RFI. That's
22 environmental jargon for RCRA Facility Investigation.
23 RCRA stands for the Resource Conservation and Recovery
24 Act which is the controlling legislation for this whole
25 investigation and correction process. The fact sheet

1 MR. SCULLION: (Cont'd) that we have handed out
2 provided the information about the process.

3 We are poised now to begin the first phase of our
4 Interim Measure. After we complete the first phase,
5 we'll move on to a second phase. And as we progress
6 through both the RFI process and Phase One of the
7 Interim Measure, we will initiate what is called the
8 Corrective Measure Study. The objective of this portion
9 of the process is to determine that final solution or
10 Corrective Measure for the environmental concerns of the
11 Old County Landfill.

12 And, finally, when we know what our final solution
13 is, we will implement this in the Corrective Measures
14 Implementation Phase.

15 (CHANGES TO SLIDE 9)

16 MR. SCULLION: I want to assure you that the Navy
17 is fully committed to environmental clean-up actions at
18 the Old County Landfill.

19 What I'd like to do at this point is have Mr. Cater
20 take over and provide a detailed but simplified review
21 of our current investigative efforts, our upcoming
22 investigatory efforts, and he'll describe the Interim
23 Measures pilot skill remediation treatment system in
24 detail. And when he concludes, I'll summarize and we'll
25 take your questions. Mr. Cater.

1 MR. CATER: Thank you, Captain Scullion. I
2 appreciate the turnout tonight. Thank you for being
3 here. I hope to answer a few of your questions,
4 especially for the newcomers.

5 (CHANGES TO SLIDE 10)

6 MR. CATER: First of all, I'd like to brief you a
7 little bit on what have we learned so far in our
8 investigation. First, we know there are 17 volatile
9 organic compounds or what we call VOCs within the
10 groundwater at the Old County Landfill. Eleven of those
11 compounds are related to solvents and six are related to
12 fuels such as gasoline.

13 When I talk about a volatile organic compound, what
14 I mean by volatile is the compound evaporates rapidly
15 into the air when they're exposed directly into the air.
16 When they're in the groundwater, they're within solution
17 much like sugar or salt would be dissolved in water.
18 The context that I'm using "volatile" in is not that
19 they burn in the air, especially in their presence in
20 groundwater at extremely low levels.

21 Now, how have we determined this? Well, we used
22 what we call a hydrocone sampling. As a few of you who
23 may have been here before know, this is a technique that
24 we described and used in October of last year. This is
25 a direct push technology where we push a stainless steel

1 MR. CATER: (Cont'd) rod into the ground, open an
2 end and pull a discrete sample of groundwater from a
3 proper depth. That gives us an estimate of the
4 concentration in the groundwater, and we feel that this
5 is a high estimate or conservative estimate.

6 This technology is a screening tool and it gives us
7 very good answers in a short time frame which we've been
8 sharing with you.

9 (CHANGES TO SLIDE 11)

10 MR. CATER: Well, what else do we know? We know
11 the solvents and the fuel-related compounds that were
12 detected in the groundwater are from nine to eighty-five
13 feet below the ground surface. We've said before
14 they're 58 feet below the ground surface within the
15 subdivision, but during March we found detections at 85
16 feet directly beneath the landfill.

17 We also know that the affected groundwater is
18 approximately 750 feet west of Spur 40 within the
19 Crooked River Plantation Subdivision. We know that the
20 groundwater is flowing in a north-northwest direction at
21 approximately 30 to 50 feet a year.

22 All this information is based on our hydrocone
23 screening investigation that we completed in the fall.

24 (CHANGES TO SLIDE 12)

25 MR. CATER: This slide is a representation of the

1 MR. CATER: (Cont'd) plan view of the affected
2 groundwater based on our interpretation of the November
3 investigation. Now, this representation is a snapshot
4 in time of the groundwater that we knew about in the
5 November investigation.

6 (CHANGES TO SLIDE 13)

7 MR. CATER: As the groundwater continues to move
8 with time, the movement is affected by the private
9 irrigation wells or what we acronym as called the PIW
10 usages. As we told you in December and in May, we
11 detected low concentrations of solvents during our
12 sampling in the PIWs. Nine of the sixty PIWs we sampled
13 had detectable levels of solvents present in the
14 affected groundwater.

15 (CHANGES TO SLIDE 14)

16 MR. CATER: These next illustrations are provided
17 to help explain how your private irrigation well can
18 affect the movement of the groundwater. In this plan
19 view, we show an illustration of how, when the private
20 irrigation wells are off, the groundwater will continue
21 to move in its natural direction. But when you turn
22 your private irrigation wells on, you can change the
23 direction of the movement, even to where it's located
24 outside of the affected area.

25 (CHANGES TO SLIDE 15)

1 MR. CATER: In this cross-section, it shows that if
2 the affected groundwater is beneath your well and there
3 was a detection in there, it would continue to move in
4 its natural state on across, underneath and unaffected
5 to your wells.

6 (CHANGES TO SLIDE 16)

7 MR. CATER: However, if you turn your well on, you
8 could potentially draw the groundwater up to them. It's
9 for these reasons that we've asked the residents of
10 Crooked River Plantation Subdivision to voluntarily
11 continue to minimize the use of their private irrigation
12 wells.

13 (CHANGES TO SLIDE 17)

14 MR. CATER: Well, what else do we know at this
15 time? In November of 1992, the investigation included
16 air monitoring in the area of the Crooked River
17 Subdivision. The result was that no solvents or fuel-
18 related compounds were detected in the ambient air, the
19 air that you breath.

20 We also tested the water in Porcupine Lake and the
21 sediments from Porcupine Lake. No solvents or fuel-
22 related compounds were detected in that water or the
23 sediments.

24 (CHANGES TO SLIDE 18)

25 MR. CATER: As many of you were here in our May

1 MR. CATER: (Cont'd) 1993 meeting, remember the
2 discussion was of our Screening Risk Evaluation. There
3 are two types of risks that were used in that
4 determination. These are carcinogens and non-
5 carcinogens. What I mean by carcinogens is that these
6 are the chemicals that potentially could cause cancer in
7 laboratory animal studies. These are the things like
8 cigarette smoke or saccharine which everybody reads
9 about in the newspaper all the time. Non-carcinogens
10 are things that could cause health effects if you are
11 exposed to them over a long enough period of time.
12 These are the things like gasoline, glues or even your
13 common household cleaners.

14 Our Screening Risk Evaluation indicated that there
15 is no evidence of excess cancer risk associated with the
16 carcinogens within the affected groundwater and there is
17 no evidence of non-carcinogen health threat.

18 (CHANGES TO SLIDE 19)

19 MR. CATER: However, we did advise you, the
20 residents, in May of 1993 that if you choose to further
21 reduce your risk, you can do two things. You can
22 minimize your contact with the groundwater from the
23 private irrigation wells by not playing in your
24 sprinkler systems or washing outdoor items with this
25 water. You can also avoid filling swimming pools or

1 MR. CATER: (Cont'd) your child's wading pool or
2 using it for your child's water toys. Basically, we're
3 asking you to minimize the private irrigation wells.

4 (CHANGES TO SLIDE 20)

5 MR. CATER: What are our next investigative
6 actions? The next investigation action, as Captain
7 Scullion said, are centered around the completion of the
8 RCRA Facility Investigation at the Old County Landfill.
9 This will involve work at the landfill on the SUBASE
10 property and work within Crooked River Plantation
11 Subdivision.

12 We will be installing monitoring wells and sampling
13 those monitoring wells from around the landfill and
14 within the Crooked River Plantation Subdivision. We
15 will also be gathering subsurface soil samples from near
16 the monitoring wells.

17 (CHANGES TO SLIDE 21)

18 MR. CATER: This slide provides a view of the
19 proposed locations of our monitoring wells. We have ten
20 monitoring wells that will be located in the
21 subdivision, basically in the streets. These are at
22 different depths and they are being used to help us
23 confirm the results of our previous investigations.

24 (CHANGES TO SLIDE 24 AND SLIDE 25)

25 MR. CATER: These next two slides are just MR.

1 CATER: (Cont'd) photographs are personnel who are
2 sampling the groundwater from the installed monitoring
3 wells. We use a tube called a bailer to gather the
4 groundwater from the well and to place it into the
5 sampling container. You will see this later this year
6 and then early next year.

7 (CHANGES TO SLIDE 26)

8 MR. CATER: We also will be gathering additional
9 surface water and sediment samples from Porcupine Lake.
10 In an effort to try to determine the source of the
11 solvents affecting the groundwater, we're going to do
12 what we call test trenching within the area of the
13 landfill, actually digging up parts of the landfill. We
14 will also do additional air monitoring at the landfill
15 and within the subdivision.

16 In addition to the sample gathering, we will do a
17 survey of the ecology in the area. This will help us to
18 determine what parts of the ecology could be affected by
19 the affected groundwater in the area of the landfill.
20 We will also be working with your local county health
21 department to gather a public health survey.

22 (CHANGES TO SLIDE 27)

23 MR. CATER: The analytical program that we use to
24 complete our RCRA Facility Investigation is in
25 compliance with approved Georgia Environmental MR.

1 CATER: (Cont'd) Protection Division requirements.
2 These requirements are also approved by the United
3 States Environmental Protection Agency.

4 As we've been saying, we also are going to take the
5 samples for the groundwater, the surface soil,
6 subsurface soil, air, surface water and sediments.

7 (CHANGES TO SLIDE 28)

8 MR. CATER: The objectives that we're attempting
9 with the RFI for the Old County Landfill include a
10 source identification. It says if possible because
11 based on our current knowledge, the affected groundwater
12 area is of such consistency, that we expect many small
13 areas of potential sources within the landfill. It may
14 not be able to identify one area, one place in the
15 landfill from where the affected groundwater is coming
16 from.

17 We're also going to characterize the contamination
18 or, if you will, we are going to confirm our current
19 knowledge of the affected groundwater. We're going to
20 be gathering scientific and engineering data that will
21 support our next steps, that being the Corrective
22 Measure.

23 We're also going to be conducting a health and
24 environmental assessment. This assessment is an
25 assessment of how the compounds present in the MR.

1 CATER: (Cont'd) groundwater will affect the
2 environment and the health of persons that could
3 potentially be exposed. This is very similar to what
4 we've already done with our Screening Risk Evaluation.
5 The biggest difference being that we're going to use the
6 data we gather in these steps and go back through the
7 Screening Risk Evaluation that we presented in May.

8 (CHANGES TO SLIDE 29)

9 MR. CATER: What is our time frame for these
10 actions? We anticipate starting our field activities in
11 late October to early November. That will involve the
12 installation of the monitoring wells within the area of
13 the landfill and the subdivision.

14 We anticipate completing our field investigation by
15 the end of the summer of next year and completing our
16 report by late 1994 or early 1995. It may seem like a
17 long time, but we do have a lot of work to do and a lot
18 of data to gather to finish answering all the questions.

19 At some time during the RFI process, possibly as
20 early as next summer, we will begin our Corrective
21 Measure Study. We're going to parallel our processes
22 and continue moving as rapidly as we have been.

23 This portion of the presentation basically
24 concludes what we're going to do in our next
25 investigation. What I'd like to do now is to provide

1 MR. CATER: (Cont'd) you with information
2 regarding our Interim Measure or the steps that we're
3 now beginning to take to clean up the affected
4 groundwater. The Interim Measure, as the captain
5 pointed out, is designed to begin to control or
6 remediate the problem.

7 (CHANGES TO SLIDE 30)

8 MR. CATER: We have planned to phase our Interim
9 Measure into full action. The first phase or Phase One
10 will allow us to gather information about the
11 groundwater and the subsurface soils while we are
12 treating it.

13 Since most of our information is based upon
14 screening data, we need additional engineering data to
15 fully design an effective system. However, we do have
16 enough knowledge to approximate what will be effective,
17 and what we can implement is a small pilot scale test to
18 confirm our approximation. In the past, investigative
19 and remediation processes have been more an orient that
20 you investigate it fully and then implement a
21 remediation after reports. Those are usually quite a
22 bit longer a process than we're dealing with here.
23 However, today's environment is to move forward as you
24 have on your current knowledge base and begin your
25 remediation and begin to modify.

1 MR. CATER: (Cont'd) Our objective of the Interim
2 Measure, especially the Phase One portion, is to provide
3 the hydraulic control of the affected groundwater. By
4 hydraulic control, I mean we're going to attempt to slow
5 or stop the natural movement of the groundwater. That
6 will keep the affected area from getting larger.

7 We're also going to be testing the groundwater for
8 response to our system which will be a pump and treat
9 remediation system. This means we're going to find out
10 how much water we can pump from the ground from a single
11 well efficiently and how much of the area of the
12 affected groundwater will be controlled by a single well
13 and how effective our treatment of the groundwater, once
14 we move it, will be.

15 This information will allow us to determine the
16 scale or the size of our final approach to the Interim
17 Measure which we're calling our Phase Two Interim
18 Measure. And by scale, I mean how many more wells will
19 we need, what a possible estimate of time will be for
20 cleaning it up.

21 The clean-up levels we're aiming for are the State
22 required, the Georgia EPD required levels to the maximum
23 concentration limits which I believe were listed in your
24 fact sheet as a description.

25 The process for the Phase One Interim Measure will

1 MR. CATER: (Cont'd) involve the installation of
2 the recovery wells. These are called recovery wells
3 because they recover the affected groundwater from below
4 the surface of the land.

5 We'll install water level monitoring wells which we
6 call piezometers. They're used to measure how the
7 groundwater is affected during the pumping from the
8 recovery wells, how much it depresses or draws down.

9 We will be installing a groundwater transfer system
10 which is a series of pipes that takes the groundwater
11 from the recovery well locations back over to the Navy
12 property where our treatment compound area will be
13 located.

14 We'll be building a treatment system within the
15 area of the landfill on the Navy property. This
16 treatment system will be used to study the treatment of
17 the groundwater prior to its discharge and the
18 effectiveness of the treatment. The final solution of
19 our treatment will be dependent on the results of this
20 pilot scale test.

21 (CHANGES TO SLIDE 31)

22 MR. CATER: The actions involved in the Interim
23 Measure Phase One include the treatment of the
24 groundwater for solvents and fuel-related compounds.
25 The treatment of the affected groundwater is mainly

1 MR. CATER: (Cont'd) through removing it from the
2 ground. But in this first phase, we will be removing
3 the solvents from the groundwater prior to discharging
4 it from our treatment compound.

5 The Phase One recovery wells are proposed to be
6 located in the known areas of highest concentration.

7 As we're removing the affected groundwater from the
8 areas near the recovery wells, we will test the raw
9 water -- and pardon the typo; it says rain and it's raw
10 -- raw water that's coming in which we call influent and
11 the treated water which we call effluent. This allows
12 us to evaluate our treatability requirements or
13 parameters. It gives us the information on how
14 effective our treatment system is and if it's necessary
15 to treat the groundwater prior to the discharge.

16 (CHANGES TO SLIDE 32)

17 MR. CATER: What I'd like to show you now is the
18 locations of our recovery wells and our water level
19 monitoring wells. If you were here last time, we also
20 submitted some contours of the groundwater. And if you
21 compare these, you'll see that they are basically in the
22 highest known levels of concentration.

23 You'll notice we have four recovery wells, two
24 within the Navy property near the landfill and two along
25 the Georgia Department of Transportation right-of-way on

1 MR. CATER: (Cont'd) Spur 40. We will probably
2 install two additional ones.

3 As we begin to treat the groundwater with these
4 systems, we will have an understanding of how the
5 groundwater and the area will react to our proposed
6 recovery system. That will allow us to look at the
7 options for the treatment of the groundwater beneath the
8 subdivision.

9 (CHANGES TO SLIDE 33)

10 MR. CATER: What type of groundwater treatment are
11 we using? This slide is an illustration -- one more. I
12 think I backed up one. There we go. This slide is an
13 illustration that we use to describe the process.

14 As you can see, we first remove the groundwater
15 using the recovery wells and we pipe it to our treatment
16 compound. We pass the groundwater through an air-
17 stripping process where we remove the solvents from the
18 groundwater through the use of air. We then treat the
19 air by passing it through some type of filtration system
20 or treatment system. That way, we're not transferring
21 the contaminants of the affected groundwater problem
22 from one media to another.

23 The treated water will then be discharged, possibly
24 to the City of St. Marys sewer water treatment center or
25 to the base sewer water treatment system. As it goes

1 MR. CATER: (Cont'd) into those treatment systems,
2 it is then treated before it goes.

3 (CHANGES TO SLIDE 34)

4 MR. CATER: The next series of slides I'm going to
5 show you are treatment systems being installed. This is
6 a photograph of a typical trench in a recovery well
7 area. This trench is where we lay our piping and our
8 electrical conduit for our sensors.

9 (CHANGES TO SLIDE 35)

10 MR. CATER: This is a completion of a recovery well
11 vault. In the areas along D.O.T., we will not have
12 concrete back into our trenches. We will replace as is,
13 but the vault will still be there.

14 (CHANGES TO SLIDE 36)

15 MR. CATER: This is a photograph of a treatment
16 compound that you will see very similar to on the Navy
17 property with the air-stripper tower coming up.

18 (CHANGES TO SLIDE 37)

19 MR. CATER: In our Phase One, the system that we
20 install will initially operate for 45 days to give us
21 our initial performance. After that initial operation,
22 we're going to continue to operate for eight months.

23 As we're evaluating, we will then go into our Phase
24 Two. This evaluation will allow us to move into our
25 Phase Two. During the operation, we are removing

1 MR. CATER: (Cont'd) groundwater, treating it and
2 starting to correct the problem.

3 Our Phase Two approach is basically a modification
4 to Phase One, a modification such as the addition of
5 pretreatment to the water, additional treatment prior to
6 the discharge or even finding it may be not necessary
7 before we discharge it to one of the sewer treatment
8 facilities.

9 We may also find it necessary to expand our Phase
10 One approach by adding additional recovery wells or by
11 building an additional treatment compound.

12 The Phase Two Interim Measure will be our final
13 interim measure and will be designed to complement the
14 final solution of the Corrective Measure.

15 (CHANGES TO SLIDE 38)

16 MR. CATER: Our time frame for this? Again, we're
17 going to be out in mid to late October of this year
18 installing our recovery wells and beginning to build our
19 treatment compound. You may notice some activity around
20 the landfill earlier in the latter part of this month.
21 That will be basically us bringing in our field office
22 and our telephone and electricity and water for us to be
23 operational.

24 We anticipate turning on the pumps and beginning
25 the actual pilot scale test in January or February of

1 MR. CATER: (Cont'd) 1994. That's the period that
2 we begin to treat the groundwater.

3 Our initial 45-day testing is anticipated to be
4 completed by the spring of 1994 and the Phase One
5 Interim Measure completed by early 1995.

6 Basically, in a short brief time, that's what we
7 plan on doing with the problem out in the Old County
8 Landfill. Now I'd like to turn it back over to Captain
9 Scullion.

10 (CHANGES TO SLIDE 39)

11 MR. SCULLION: Thank you, Frank. I'll just take a
12 couple of seconds here to summarize what we've been
13 saying tonight. First, in one year the Navy's gone from
14 public notification of a potential environmental problem
15 to a pro-active remediation or clean-up process.

16 A very important teaming process has started. This
17 team process is with you, the public, the Navy, local
18 officials and regulatory agencies, especially Georgia
19 Environmental Protection Division. The process will
20 continue through regular interaction with you. We will
21 continue our public information sessions. We will
22 continue to provide fliers. We will continue to provide
23 media updates of what we are doing. We will continue to
24 be available through Mr. Steller's office to answer any
25 inquiries you may have.

1 MR. SCULLION: (Cont'd) Our investigation process
2 is being completed to confirm the screening data that we
3 have. The Interim Measure or clean-up action will start
4 soon. And, finally, the Corrective Measure process will
5 be initiated in the not-too-distant future.

6 (CHANGES TO SLIDE 40)

7 MR. SCULLION: I would like to say again that we
8 are committed to these environmental clean-up actions at
9 the Old County Landfill. We live here also and we want
10 to see this cleaned up just as much as you do. If we
11 work together, this will happen.

12 (CHANGES TO SLIDE 41)

13 MR. SCULLION: This ends the formal presentation
14 this evening. I'd like to open the floor for any
15 questions. First of all, the ground rules are that when
16 somebody's asking a question or talking, we let them
17 have the floor. Respect for another person's time on
18 the microphone is important. We want to preserve that.
19 So we're ready for your questions. Yes, ma'am.

20 MEMBER OF THE PUBLIC: Do you feel that this
21 process will take care of it without finding the actual
22 source and uncovering it?

23 MR. SCULLION: Do we feel that the process will
24 take care of the contamination without actually finding
25 the immediate source or sources?

1 MEMBER OF THE PUBLIC: Right.

2 MR. SCULLION: Frank can help me with this. This
3 is not an uncommon situation. The Georgia EPD folks can
4 probably tell you the same thing. There are many times
5 when you can't find the exact source. What we're
6 looking at here is to try to identify the source or
7 sources and, at the same time, try to treat the
8 groundwater. That's our basic approach.

9 I've seen this at many other sites that the Navy
10 has. It's common technology to try to strip the
11 contaminants out of the groundwater while you're
12 proceeding with trying to identify the source. The
13 source may never be fully identified. We may eliminate
14 the problem by treating the groundwater. The source may
15 have diffused itself.

16 MEMBER OF THE PUBLIC: But you feel that the source
17 has probably already basically emptied itself into the
18 groundwater?

19 MR. SCULLION: We don't know that for sure.

20 MR. CATER: There's other points in there. As we
21 move into Corrective Measure, there are other things
22 that we can do such as setting up a hydraulic barrier so
23 that no more contamination can move off the landfill and
24 potentially placing some type of barrier on top of the
25 landfill to slow infiltration of groundwater through the

1 MR. CATER: (Cont'd) landfill which would continue
2 to create the release.

3 If possible, and part of our test trenching will be
4 to try to identify or characterize the sources. We may
5 find them; we may be able to remove them. But as
6 Captain Scullion was saying, this is not atypical to any
7 landfill or any landfill problem. A lot of times, you
8 have to just try and correct, contain and control and
9 begin to make maybe a dividing barrier, if you will, in
10 the area of the landfill and remediate everything on the
11 other side and just try and control the release of the
12 contamination.

13 MEMBER OF THE PUBLIC: So you can actually stop the
14 flow of water to a certain depth, then?

15 MR. CATER: We're going to be testing that. It's
16 very potentially possible we'll be able to. That's a
17 part of our pilot scale test.

18 MEMBER OF THE PUBLIC: Okay. I have another
19 question. You had said that you would release the water
20 either to the City or to the Navy. And then what
21 happens to the water that's already treated? Where will
22 that go to?

23 MR. CATER: The treated water is run through our
24 treatment compound and the levels of contamination are
25 reduced. At this time, we're going to reduce them down

1 MR. CATER: (Cont'd) to the MCL. Then that water
2 is discharged.

3 MR. SCULLION: Excuse me, Frank. MCL.

4 MR. CATER: Oh, yes. Maximum Concentration Level,
5 which is a regulatory requirement for what the compound
6 can be in the water. It's a reduction. We're going to
7 reduce it quite down.

8 MEMBER OF THE PUBLIC: But where will that water be
9 released to?

10 MR. CATER: After we've treated it, we will release
11 that water to the sewer systems of either the base or
12 the City. That water will then go into the sewer system
13 with all the rest of the water that's going into the
14 sewer system. There it goes through another aeration
15 process and I believe then it goes into a land
16 application system. By the time it gets there, the
17 compounds would not be detectable in the water.

18 MR. SCULLION: It'll be treated like any other
19 wastewater will be treated once it's put into the
20 municipal or the base treatment collection system. So
21 it will go through a wastewater treatment process in
22 addition to the process that we use to try to strip the
23 contaminants out to get it below the minimum public
24 health standards for maximum contaminant levels in
25 water.

1 MEMBER OF THE PUBLIC: I have a third one. When
2 you guys came out to Cottage Court and did your testing
3 of the road, you broke a water main. Well, our road has
4 yet to be repaired and there's a major chunk of asphalt
5 out of the road. When will that be taken care of
6 because that's almost -- we're talking almost about a
7 year ago.

8 MR. CATER: We didn't know of a major chunk of
9 asphalt. The water main breakage we were coordinating
10 with the City. As the water main out there, as soon as
11 it broke, we were notified.

12 MEMBER OF THE PUBLIC: Oh, you fixed the problem
13 right away, but the road is still -- at least a 4 by 6
14 chunk of asphalt.

15 MR. SCULLION: We will take that for action with
16 the City. Take a hard look at who did the repair, how
17 it was done. But one way or the other, either through
18 our contract with ABB or through help from the City,
19 we'll get that fixed. Cottage Court.

20 MEMBER OF THE PUBLIC: This action will be taken
21 soon --

22 MR. SCULLION: As soon as we can.

23 MEMBER OF THE PUBLIC: -- to where it will be taken
24 care of within the next few months at least?

25 MR. SCULLION: Yes.

1 MEMBER OF THE PUBLIC: Okay. Thank you.

2 MR. CATER: This is the first we heard of it.

3 MR. SCULLION: Other questions?

4 MEMBER OF THE PUBLIC: I think I heard that you're
5 going to be able to stop the water. Is the individual
6 private wells going to be dry, then?

7 MR. SCULLION: One possible solution to containing
8 the contaminants is to put a barrier and that barrier
9 will stop the flow of groundwater or divert the flow of
10 groundwater from the landfill. That certainly doesn't
11 include all the groundwater that flows into the Crooked
12 River Subdivision.

13 One of the reasons sometimes you create a barrier
14 is to dam the water and then pull from that, treat it
15 and then we can possibly put that water back in the
16 ground. We don't know the answer to that, Mr. King.

17 MEMBER OF THE PUBLIC: And, of course, Mike doesn't
18 have an answer. If that is stopped and our wells are
19 dry, the City's not going to help us.

20 MR. SCULLION: I think the City --

21 MEMBER OF THE PUBLIC: He's already said no.

22 MR. CATER: I don't think I can pump enough to dry
23 your wells.

24 MR. SCULLION: Mike, we certainly have put that
25 issue to rest. The City is not going to underwrite the

1 MR. SCULLION: (Cont'd) cost of using potable
2 water from the City system to irrigate. I think that
3 was clear the last two sessions. Do you want to comment
4 on that?

5 MR. MAHANEY: I think you did just fine.

6 MR. SCULLION: Other questions?

7 MEMBER OF THE PUBLIC: During your presentations,
8 you mentioned a fact sheet. We just have the handout.
9 We didn't get the fact sheet.

10 MR. SCULLION: The fact sheet was handed to all the
11 residents --

12 MEMBER OF THE PUBLIC: Previously?

13 MR. SCULLION: -- previously. Now, Bob, do you
14 have some of those with you?

15 MR. STELLER: Yeah, there are some right over here.

16 MR. SCULLION: We don't have one for everyone.

17 MEMBER OF THE PUBLIC: Well, I've got one. On page
18 12 you've got -- I hope it's an illustration of what the
19 plume could look like because it's much larger than it
20 used to be.

21 MR. CATER: If you remember from our pass-outs of
22 the contour maps, if you took all the contour maps,
23 stacked them one on top of another and then took the
24 zero line and traced around, this is a representation of
25 all of that.

1 MEMBER OF THE PUBLIC: Well, prior to this, though,
2 it was only halfway through the landfill, remember, and
3 only about a third of the way up from the school.

4 MR. CATER: The March presentation where we did the
5 three, we basically had a zero -- I wish I had a -- let
6 me come up here. I'll speak loudly.

7 During the March presentation, we were showing some
8 zero contour lines at different elevations. We had some
9 representations of the plume area, if you will, in these
10 areas. We know it's zero.

11 MEMBER OF THE PUBLIC: Okay.

12 MR. CATER: Okay. But basically we don't have any
13 detections out beyond this border. So, if you will,
14 this is a representation of the outer limits of the
15 plume and the affected groundwater. And if you
16 remember, all our information is based on a discrete
17 sample in a little area. So we do have to be
18 conservative when we're going towards the design of how
19 much groundwater do we need to look at for our
20 treatment. We use this to design where we're going to
21 place our recovery wells, where we're going to place our
22 monitoring wells and how big our system can potentially
23 be. A lot of it drives in a financial end. How much
24 money do we need to plan forward for? How big can this
25 be?

1 MEMBER OF THE PUBLIC: And like the young lady
2 said, I've got one more, if you don't mind.

3 On page 21 where it says the monitoring well
4 locations, there's three of them in the middle and it
5 looks like -- page 21. It looks as if there's three of
6 them right in one spot. That's three separate wells.
7 It would be like that, I assume.

8 MR. CATER: Okay. In location number nine, if you
9 look on the legend, these are monitoring wells. Then we
10 give a proposed depth. We do have to monitor at varying
11 depths because, if you remember from the contouring, the
12 contamination varies a little bit as it moves down.
13 This is three separate wells at approximately a close
14 location of each other. You will see a well, a well and
15 a well.

16 MEMBER OF THE PUBLIC: The reason I'm asking is
17 that one of the statements made, and it was also in the
18 presentation, is that you would have more wells where
19 there was a high density of identification, and that's
20 right inside of my house.

21 MR. CATER: That statement you missed. If you go
22 to -- if you move forward to Slide 32 --

23 MR. SCULLION: Is that where I'm going?

24 MR. CATER: Yeah. It may be about 30.

25 MEMBER OF THE PUBLIC: That's the recovery wells.

1 MR. CATER: Those are the recovery wells. These
2 are the ones -- back up one.

3 MEMBER OF THE PUBLIC: Yeah, 31.

4 MR. CATER: These are the ones we stated are going
5 to be located in the areas of the highest known
6 concentration. These are the wells that are removing
7 the groundwater for treatment. The wells on the other
8 slide, on Slide 12, are the monitoring wells. They're
9 going to be two-inch diameter wells where we're only
10 testing and sampling the water.

11 MR. SCULLION: Laura, where are you?

12 MS. HARRIS: Yes, sir.

13 MR. SCULLION: When you described to the Technical
14 Review Committee today the purpose of those three wells,
15 you mentioned something else. Is that right on the edge
16 of where we know the plume is about to be?

17 MEMBER OF THE PUBLIC: It was originally.

18 MS. HARRIS: Well, it's just inside of there. That
19 area had about 30 or 40 feet below ground before you
20 ever got into contamination. So we want to continue to
21 monitor that shallow clean zone, we want to monitor in
22 the contamination and I want to monitor below it.

23 MR. SCULLION: Laura, as you know, had a hand in
24 the design of where those wells were going to be.

25 MEMBER OF THE PUBLIC: I know. But I had to bail

1 MEMBER OF THE PUBLIC: (Cont'd) out today -- I'm
2 sorry -- so I missed that. But those comments puts an
3 old man's mind to rest because at first, you know, the
4 previous slide said where there's more than one well, it
5 had a high identification. But the comment was on
6 another slide.

7 MR. CATER: Right. The comment goes to the
8 recovery wells. If you remember from the contours where
9 they got real jumbled --

10 MEMBER OF THE PUBLIC: Right.

11 MR. CATER: -- if you look at our recovery wells,
12 those are basically going in our areas of known
13 contamination. And as Laura was pointing out, our
14 monitoring wells are to monitor the progress of the
15 groundwater and affected groundwater and see if it's
16 expanding or, as we begin to do our recovery, is it
17 retreating. Will we be effective in retreating it or
18 moving it back?

19 MR. SCULLION: Yes, sir.

20 MEMBER OF THE PUBLIC: I've got a question. On
21 page 28, you talk about on the next investigative
22 action, the RFI. You talk about the health and
23 environmental assessment. I'd like to know what the
24 plans are for the health and environmental assessment.

25 MR. CATER: I'm going to try to answer this one.

1 MR. CATER: (Cont'd) This is not my field of
2 expertise. I may -- Mr. Murray, is that in yours a
3 little better?

4 MS. HARRIS: I think the State may be able to
5 answer that question.

6 MR. SCULLION: Sorry, Jim.

7 MR. CATER: Actually, a health and environmental
8 assessment is where we -- as we talk about it, we look
9 at the contamination that we're dealing with, the
10 volatile organic solvents and the fuel-related
11 compounds. And we look at the pathways or the potential
12 ways that they could come into contact with the
13 environment, the ecology, the plant life, the flora-
14 phonal, if you will, just the different animals that
15 live in the environment. So you have the pathway for
16 their exposure. Is there a potential pathway for their
17 exposure and does it create a threat to that part of the
18 ecology? Are we going to endanger an endangered species
19 with this?

20 The second part of it is on the human assessment.
21 Again, we look at the potential receptors that are
22 around, basically the residents of Crooked River
23 Subdivision. And as we did with our Screening Risk
24 Evaluation, how can you be exposed? Well, you can be
25 exposed to this groundwater presently if you pump it out

1 MR. CATER: (Cont'd) of your irrigation system and
2 you play in it or you accidentally swallow some of it
3 when you fill your swimming pool.

4 We measure what we call a risk in that sense. We
5 measure that along the EPA guidelines and the State
6 guidelines for what's acceptable, if you will. And as
7 we said before in our May meeting, an acceptable was one
8 additional cancer case in a million. Out of another
9 million people, that would be one more. And the
10 standard cancer rate right now in the United States is
11 250,000 out of every million people will get cancer just
12 for living here, just for living in the United States.
13 That's the standard rate. And what risk says is that
14 it's acceptable if that's 250,001.

15 However, the State -- and I'm sure they're waiting
16 for me to say this. The State requires a clean-up level
17 of the groundwater to the MCL, the Maximum Contamination
18 Level, which is a defined limit where there is that
19 acceptable limit.

20 MEMBER OF THE PUBLIC: Are we going to do any
21 assessment of those that have already been exposed to it
22 and have already gotten cancer?

23 MR. CATER: We went through with our Screening Risk
24 Evaluation and showed there was no real risk associated
25 with the exposure scenarios that we presented in May.

1 MR. CATER: (Cont'd) Those exposure scenarios were
2 people irrigating their wells with it and using water
3 for irrigation. The risk was at one times ten to the
4 minus six. But we say if you wish to reduce that risk,
5 then we suggest that you minimize the use of your
6 private irrigation well.

7 MR. SCULLION: One of the reasons that we have to
8 do the follow on the health and risk assessment is --
9 and we'll do the health analysis from the county records
10 -- is you have to remember that what we submitted so far
11 was a preliminary assessment and an Interim Corrective
12 Measure Study. One of the final documents that we have
13 to provide to Georgia EPD for their approval is our
14 Final Corrective Measure Study. Those assessments in
15 the health survey will take the information we have as
16 of May and all the rest of the information we gathered
17 through the rest of our investigation, the public health
18 data, and we'll do a final assessment that's part of
19 that final report.

20 So really we have to bring forward everything we
21 knew in May and everything we learn over the next
22 several months, put them together into a final health
23 and risk assessment to provide that Final Corrective
24 Measure Study.

25 So everything we're dealing with today is MR.

1 SCULLION: (Cont'd) preliminary or interim in fashion.
2 We don't get final approval for the corrective measures
3 until we get that final study completed, submit it to
4 the State and get their final approval. Did I say that
5 correctly?

6 MEMBER FROM THE STATE: (Nods head)

7 MR. CATER: The things that cause risk in there are
8 drinking that groundwater. No one in Crooked River
9 Plantation is drinking that groundwater.

10 MEMBER OF THE PUBLIC: Yeah, but we've had it on
11 our skin.

12 MR. CATER: Dermal absorption is minimized, as we
13 said in May -- eighty-eight days a year, four hours a
14 day, it was one times ten to the minus six for an adult.

15 MR. SCULLION: Let me go back to -- you were not
16 here in May?

17 MEMBER OF THE PUBLIC: No. I wasn't available here
18 in May. Every one of these has been scheduled around
19 inconvenient times for me. This is the first one I've
20 had a chance to attend.

21 MR. SCULLION: Did you get the data from our May
22 presentation?

23 MEMBER OF THE PUBLIC: Yes, uh-huh.

24 MR. SCULLION: Anybody else?

25 MEMBER OF THE PUBLIC: She (indicating) was taking

1 MEMBER OF THE PUBLIC: (Cont'd) chemotherapy then
2 from the cancer she developed.

3 MR. SCULLION: Any other questions? I think
4 somebody here deserves a hand for sticking with us all
5 night.

6 Thank you very much for coming. We'll be available
7 if you have any other questions.

8 (HEARING CONCLUDED, 7:58 p.m.)

C E R T I F I C A T E

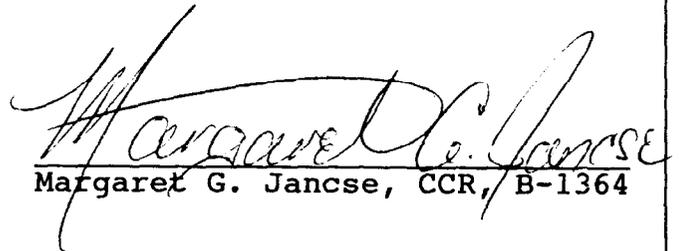
STATE OF GEORGIA,

COUNTY OF GLYNN:

I hereby certify the foregoing, pages 1 through 42, represents a true and complete transcription of the proceedings that took place in the above-captioned matter, as reported by me on September 2, 1993.

I further certify I have no interest in the outcome of this case, and I am neither kin nor counsel to any party.

This, the 27th day of September 1993.


Margaret G. Jancse, CCR, B-1364