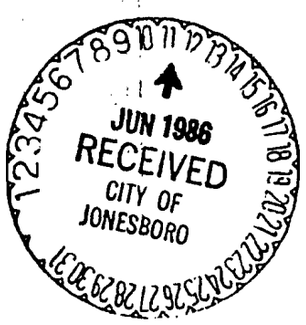
STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE, P.O. BOX 9583
LITTLE ROCK, ARKANSAS 72209

PHONE: (501) 562-7444

June 6, 1986



The Honorable Neil Stallings
Mayor, City of Jonesboro
City Hall
Jonesboro, Arkansas 72401

Dear Mayor Stallings:

In an April 22, 1986, letter, I granted your request for an extension of the public comment period for the proposed reclassification of the Jonesboro landfill. The public hearing was held on August 24, 1985, in Jonesboro and the comment period was extended to April 15, 1986. The basis for the original extension was the belief that a site evaluation, as required under the October 9, 1985, Consent Administrative Order, could provide valuable data which could, in part, be used to base the reclassification decision.

The second extension was granted for the purpose of allowing the city's contractor to present additional geotechnical data in support of the adequacy of the site for continued disposal of putrescible waste.

In the aforementioned April 22 letter, I stated that "this extension for the City to submit information concerning the reclassification should not be confused with the overall hydrogeologic evaluation of the site and remedial action as specified in the Consent Administrative Order issued in October, 1985."

However, in view of the fact that the detailed hydrogeologic study required by the Consent Order is due by July 19, 1986, I am withholding a final decision regarding reclassification until the staff has had an opportunity to review the data which will be submitted at that time.

I am, therefore, extending the public comment period to July 19, 1986, for addition comments and submittals pertinent to the August 24, 1985, public hearing landfill reclassification issue.

In the interim, please confine landfilling of Class I waste to the Southeast 1/3 of the site as delineated on figure 1 of the submitted preliminary report which is shown as an area that is underlain by a 20' thick clay strata.

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY

MEMORANDUM

TO : Tony Morris

FROM : Dick Cassat

DATE : 20-AUG-1986

SUBJECT : Jonesboro LF report

The Jonesboro Landfill report, prepared by Enviromed, has been reviewed. The following comments are pertinent to Technical Services area of review.

1. On page 3-15 metals samples are filtered for "dissolved metals" and the filter is used for "total". This is improper technique-the filter is used for "suspended" and the two are added to calculate "total". In data listings in the report neither designation is stated.

2. On page 3-17 an apparent typo is listed at the bottom of the page.

   The concentrations are stated as ppm or µg/l. The correct unit should be provided.

3. On page 3-22 The sixteenth edition of Standard Methods is referenced. The sixteenth edition was not approved by EPA for testing until 6-30-86, and therefore the testing was technically not done by EPA approved methods.

4. Soil testing for TOC, TOX, chloride, sulfate, etc., is not referenced to an approved method. The methodology stated in the report for some of the parameters is not specific on the reporting of the results (mg/kg in the soil or mg/l in the water extract).

5. On the QA/QC sheets some testing was performed outside holding times. Some duplicate samples were extremely high in concentration of parameters. The source of the duplicates should be provided, and an explanation of why these high values were used for duplicates when the values reported in the samples were much lower. Many of these high concentrations were outside the normal working range of the tests causing possibility of more error.

6. The report comes to the conclusion that since there is no groundwater contamination, the landfill should continue operation. The values for the organics such as COD, TOC, and

BOD show contamination that is roughly equivalent to secondarily treated sewage. Groundwater throughout the state has been monitored for some of these parameters. TOC values average 2-3 mg/l and COD is about the same. With the concentrations reported a remedial plan should be formulated for the contaminated area.

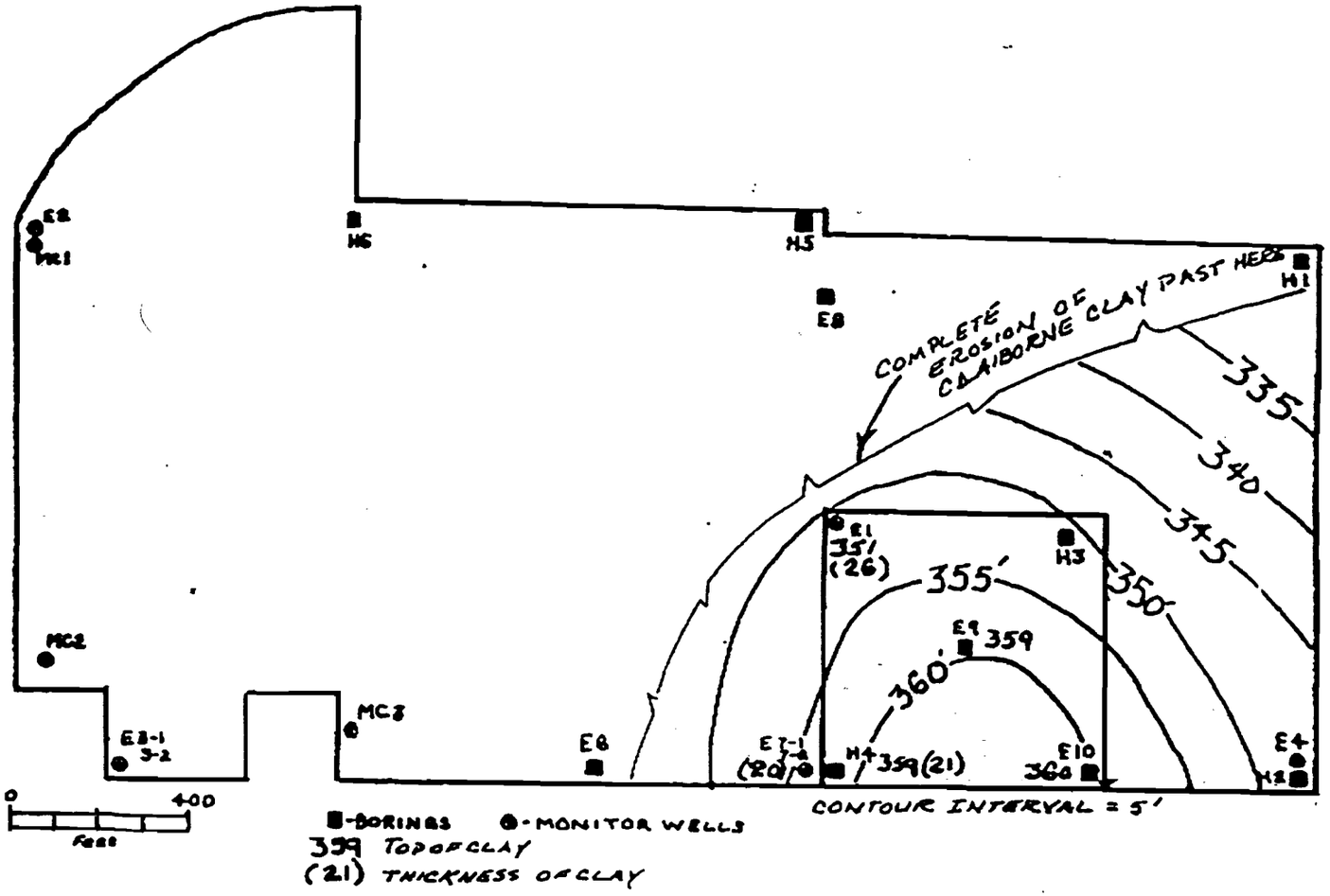


Figure 1. Structure MAP OF THE TOP OF THE CLAIBORNE CLAY.

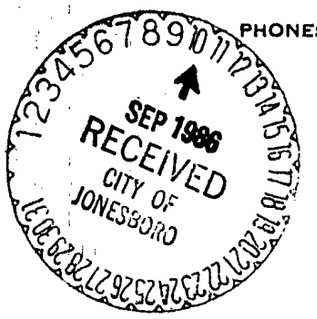
JONESBORO MUNICIPAL LANDFILL
Craighead County, Ark.
Geology By: R. Conger
Checked By: _____
April 30, 1986

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE, P.O. BOX 9583
LITTLE ROCK, ARKANSAS 72209

PHONE: (501) 562-7444

Jeff Gibson

September 8, 1986



The Honorable Neil Stallings
Mayor, City of Jonesboro
Jonesboro City Hall
Post Office Box 580
Jonesboro, Arkansas 72403-0580

Dear Mayor Stallings:

As you are aware, there are currently two Department actions pending at the Jonesboro Sanitary Landfill. The first is a Consent Administrative Order signed October 9, 1985, and the second is a proposal to reclassify the existing landfill from a Class I to a Class IV disposal facility (public hearing for reclassification was held on August 24, 1985).

The report you submitted by Enviromed Laboratories, Inc. dated August 1, 1986, is in response to item number two of the October 9, 1985, Consent Order. I have delayed the reclassification decision for over a year in order to review this report. Since the final report is now submitted and reviewed, the following decisions are immediately effective:

1. The Jonesboro City Landfill will be reclassified from a Class I to a Class IV sanitary landfill effective December 1, 1986. In the interim, Class I type wastes can continue to be deposited in the southeast 1/3 of the site as previously discussed and within design final contours. This decision is based in part upon the August 1, 1986, Enviromed report confirming that the current waste mass is surrounded by highly permeable sand and gravel with the only possible clay protection occurring as much as 100 feet below the waste. In addition, the report indicates organic contamination in some monitoring wells (COD, TOC, and BOD) roughly equivalent to secondarily treated sewage. Continued use of the Jonesboro Sanitary Landfill as a Class IV facility after the December 1, 1986 date is subject to additional requirements as determined by the Solid Waste Division of this Department.

2. In regard to the Consent Administrative Order signed October 9, 1985, item number two is complete and approved with the submission of the Enviromed report. I find that no imminent environmental endangerment is present to the extent that emergency action is necessary as provided in item number three of this order. However, I have also found that the remedial action plan to be proposed by the City (Item number 4 of the Order) must include details and schedules for proper capping, water diversion, revegetation, and groundwater testing (at intervals to insure immediate detection). The Environmed report briefly described some of these as possible remedial actions.

Please recall that the Consent Administrative Order requires the submittal of a detailed proposed remedial action plan within 60 days of approval of the assessment report (plan must be received in this office by November 8, 1986). However, closure of the filled portions of the facility including proper water diversion and revegetation should begin immediately.

If there are any questions please contact Mark Witherspoon, Chief of the Solid Waste Division, or me at this office.

Sincerely,

Phyllis Garnett

Phyllis Garnett, Ph.D.
Director

PG:jfs

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY

MEMORANDUM

TO : Phyllis Garnett, Director

FROM : Mark Witherspoon, Chief, Solid Waste Division MW
Tony Morris, Geologist, Solid Waste Division TM

DATE : 21-AUG-1986

SUBJECT : Review of Jonesboro City Landfill Hydrogeologic Report August 1, 1986.

A review of the subject report has been completed by the Solid Waste Division Staff. This report was submitted in response to item No. 2 of the Consent Order between this Department and the City of Jonesboro (signed October 9, 1985). It should be noted that the objectives of this report, as outlined in the Order, are to evaluate the special extent of surface and groundwater contamination and assess the hydrogeologic site factors pertinent to such groundwater contamination. A proposed remedial action plan with implementation schedules is to be submitted by the City within 60 days of the Department approval of the subject assessment report.

The subject report, prepared by Environmed, Inc. for the City, basically considers two (2) major stratigraphic units as the primary mediums for all hydrogeologic relationships on the existing landfill site: 1) The lowermost pit is the Tertiary Age Wilcox foundation that is reported to include a tight clay material extending laterally across the site. This clay is reported to act as an effective barrier to downward migration of leachate. It is reported at depths of as great as 100 feet below the surface elevations, 2) The second unit is a Quaternary Age sand and gravel matrix containing discontinuance clay lens. This unit extends from the clay barrier on top of the Wilcox to he ground surface and contains the existing and proposed waste disposal areas.

The existence of the continuous clay barrier on the top of the Wilcox is not supported conclusively. The correlation of this unit across the site is based on color and textural variations with only a minimum of actual physical testing, which does not conclusively indicate its presence. Maps (plates 4 and 5) are reported as being prepared primarily on deduction. The main concern with proper correlation is assuring that some discontinous clay lense in the overlying Quatermery is not considered as part of the "continupus" clay cap in the Wilcox.

However, it is most important to note that the first avenue of escape from the existing landfill is through the thick sand and gravel matrix (Quaternary) that presently surrounds the waste. If we assume that the clay barrier is actually in place as depicted, then we must insure that 1) we are monitoring the first avenue of escape from the landfill, and 2) we have accurately assessed the existing contamination.

Assuming the top of the Wilcox is protected by a laterally extensive (although vertically variable) clay as depicted by Enviromed, the most likely avenue of escape of contaminants is the overlying Quaternary material. This material ranges from 18 to 105 feet in thickness and consist of predominantly sands with some gravel and some clay lenses. Hydraulic conductivity values for this material according to the report are indicative of clean sands.

In-situ permeability tests were conducted on seven of the on-site wells. Four of these wells are screened at depths ranging from 90 to 160 feet below the land surface (Wilcox). The test results for these wells indicate a fast permeability (10 EE-3 to 10 EE-4 cm/sec), ~~however tests conducted in these wells are of little practical value since they are conducted in permeable zones beneath at least one clay layer~~. Downward migrating wastes would stop at these clay layers and move laterally at an undetermined velocity. The in-situ permeability tests conducted on the upper Quaternary sands and gravel (unit in which waste is located) indicate rapid permeability values (10 EE-3 cm/sec) eventhough the three shallow tests are all on the southern side of the site where the Quaternary material is reported to be thinner. The important conclusion to be drawn from the in-situ permeability tests is that all tests reported highly permeable material available for leachate transport where-ever tested. All velocity calculations were performed for the deep Wilcox unit only.

It is important to note that Plates 4 and 5 indicate a variable contact between the Wilcox and the overlying Quaternary deposits. Groundwater movement should be controlled by this irregular boundary defined by the "upper Wilcox clay." Flow should, at least partial be away from the high points and toward the low points along the contact. If this is actually the case ~~then Plate 5 indicates there is not a well located on the site capable of yielding a reliable downgradiant water quality regardless of the monitored depth~~.

Looks like PC&E is saying that we can not use the exist. wells in our monitoring program

The installed monitoring system consists of thirteen wells: MC-1, MW-2, and a local water well are considered upgradient; and MC-2, MW-5, MW-14-2, and MW-16 are considered downgradient. Eventhough there is some question on the comparability of the hydrologic units between upgradient and downgradient wells, ~~it is very evident that all of these wells are very definitely not monitoring the uppermost aquifer~~. These wells all extend through low permeability zones that isolate the monitored zones from the waste mass. However, it must be noted that ~~some interconnection does exist since contamination is already found in the deeper zones~~. As evidenced

by elevated oxygen demanding parameters, (BOD, COD, TOC) dissolved solids, and some metals. The report contends that the monitoring wells are located for immediate detection of potential leachate migration. This contention is obviously erroneous based on the boring logs, where the permeable sands and gravel containing the waste are separated from the screened intervals by various thicknesses of clay. It is important to note that the contamination seen in these deeper zones (see Cassat memorandum 8/20/86) is not in the first avenue of escape from the site.

Soil tests performed on material taken from the upper permeable zones, that are more likely to provide the immediate migration path for leachate, show various degrees of contamination (TOC, TOX, some metals, specific conductance, turbility) as would be expected. However, we agree that this data is not conclusive in attributing contamination directly to the landfill.

Conclusions and Recommendations

In general, the subject report has proven to be very valuable in formulating recommendations on the site. Even though we disagree with many of the conclusions and recommendations presented, the assessment does reveal that no imminent environmental endangerment exists to the extent that emergency action is necessary (Item No. 3 of the Consent Order).

However, we feel that the existing geologic setting for this landfill obviously precludes further waste disposal. Even if the continuous clay confining layer of the upper Wilcox does extend across the site, it is as much as 100 feet below the sands and gravel currently surrounding the waste. Sanitary Landfills are located in areas that will provide for immediate containment by surrounding the waste with a low permeability clay or utilizing a design that provides for leachate collection/removal system.

The staff are convinced that, at least, preliminary indications of contamination are shown in the wells and the soil samples. This observation, along with the soil samples. This observation, along with the highly permeable geologic setting, will require the first remedial actions mentioned in the subject report. Specifically, surface sealing and capping, grading, revegetation, and surface water diversion structures should be implemented.

In summary, the following factors should be expected in the proposed remedial action plan and implementation schedule required of the City by Item No. 4 of the Consent Order.

1. Class I waste disposal operations should cease as soon as possible (as specified in a definite schedule, however the existing area should be filled to capacity by December 1, 1986 based on conversations with City staff and analysis of the plans).

2. A systemic schedule for capping, water diversion, and revegetation should be detailed with specific implementation schedules.

3. A groundwater testing and reporting schedule should be developed.

cc: Dick Cassatt
Gail Fuqua

CITY OF
JONESBORO

September 12, 1986

Department of Pollution Control & Ecology
8001 National Drive
P. O. Box 9583
Little Rock, AR 72209

ATTENTION: DR. PHYLLIS GARNETT, PhD.

Dear Dr. Garnett:

I have received your letter to Mayor Stallings dated 9-8-86 where you have reclassified the City of Jonesboro's Landfill from Class I to a Class IV Sanitary Landfill. I am needing some assistance and clarifications of a few of the statements in your letter and also in the memo written to you from Mark Witherspoon dated 8-21-86.

I. Will you send me a copy of Mr. Dick Cassatt's memo of 8-20-86?

II. You approved the continuation of depositing of Class I type waste in the southeast 1/3 of the site; therefore, am I correct in assuming that the City of Jonesboro can continue to use the area as indicated on the attached drawing?

III. Will you send me a copy of the additional requirements, as determined by the Solid Waste Division of your Department, to be followed by the City for continued use of the Landfill as a Class IV facility?

IV. Several places in Mark Witherspoon's memo he implies that he has some reservations with the monitoring wells that Enviromed installed. Therefore, since I am going to be working on the remedial action plan that will include taking water samples from the monitoring wells, can you tell me if these wells are of any value to the City of Jonesboro or not?

Executive Office • City Hall • P.O. Box 580 • Jonesboro, Arkansas 72403-0580 • (501) 932-1052

V. Finally, am I correct to assume that I can fill up the holding pond in the southwest portion of the landfill?

Sincerely,

Jeffrey A. Gibson
Public Works Director/City Engineer

cc: Mayor Stallings
Herb Sanderson
Robin Nix
Don Culpepper
Jim Burton

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE, P.O. BOX 9583
LITTLE ROCK, ARKANSAS 72209

PHONE: (501) 562-7444

September 26, 1986

Jeffrey A. Gibson, Public Works Director
City of Jonesboro
Post Office Box 580
Jonesboro, Arkansas 72403-0580

Dear Mr. Gibson:

This letter is in response to your September 12, 1986 request for information concerning the reclassification of the Jonesboro Sanitary Landfill. The following responses follow the specific questions in your letter.

1. A copy of Mr. Dick Cassat's memorandum is attached.

2. As indicated in item Number 1 of the September 8, 1986, letter from Dr. Garnett to Mayor Stallings, "...Class I type wastes can continue to be deposited in the southeast 1/3 of the site as previously discussed and within design final contours." The previous discussion of this area is specifically outlined in Dr. Garnett's June 6, 1986, letter to Mayor Stallings as "...the Southeast 1/3 of the site as delineated on Figure 1 of the submitted preliminary report which is shown as an area that is underlain by a 20' thick clay strata." The area you indicated on your map is not the same area as previously discussed. I have enclosed Figure 1 of the preliminary Enviromed report for your convenience.

3. The additional requirements for continued use of the landfill site for Class IV waste disposal cannot be specifically addressed until the site remedial action plan is submitted. However, specifications on extent of fill, cover requirements, orderly progression, drainage control and access control will be included in the requirements.

4. The remedial action plan required by the Consent Order should include proposal for specific monitoring points. The adequacy of the existing monitoring wells must be evaluated in terms of the overall remedial action plan, that accompanying schedule of implementation, and the specifics of the continued Class IV operation. It appears that most of the existing monitoring wells will provide useful information in the continuing evaluation of the facility's effect on the groundwater system. However, based on your proposed remedial action plan, it may be necessary to construct additional monitoring wells.

5. The holding pond in the southwest portion of the site can be removed when the extensive sedimentation problem in this area is corrected. This pond served to trap the sediment laden runoff from the large area associated with the drum disposal operation. Since the cleanup of this area is now complete, it should be possible to establish vegetation and other erosion control measures. Specific details of the future plans for the area should be included in the site remedial action plan.

If there are any questions, Mark Witherspoon, Chief of the Solid Waste Division, and I will be at the Jonesboro City Council meeting on October 6, 1986, as scheduled with Mayor Stallings.

Sincerely,

Randall Mathis

Randall Mathis
Deputy Director

cc: Phyllis Garnett, Director
Mark Witherspoon, Chief, Solid Waste Division
Mayor Stallings, City of Jonesboro
Gail Fuqua, Field Inspector
Herb Sanderson
Robin Nix
Don Culpepper
Jim Burton