South Carolina Department of Health and Environmental Control

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November 15, 1985

CERTIFIED MAIL

P 688 425 969

Mr. C. G. Halstead
Assistant Manager of Health, Safety & Environment
U.S. Department of Energy
PO Box A
Aiken, SC 29802

File Reference: United States Department of Energy
Barnwell, Aiken, and Allendale Counties

Dear Mr. Halstead:

Enclosed is a fully executed copy of Administrative Consent Order 85-70-SW for United States Department of Energy signed by the Commissioner on November 7, 1985.

If there any questions, please telephone me at 758-5681.

Very truly yours,

Lewis R. Bedenbaugh, Director
Division of Facility Compliance
Bureau of Solid and Hazardous Waste
Management

LRB/trh
Enclosure

THE STATE OF SOUTH CAROLINA
BEFORE THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

IN RE: UNITED STATES DEPARTMENT OF ENERGY
BARNWELL, AIKEN, AND ALLENDALE COUNTIES

ADMINISTRATIVE CONSENT ORDER
85- 70-SW

The United States Department of Energy ("DOE") owns and administers the Savannah River Plant ("SRP"), (SC1890008989), a nuclear materials production facility located in Barnwell, Aiken, and Allendale Counties in South Carolina.

Operations of the SRP have involved the handling and disposal of various forms of wastes, including chemical, solid, liquid, and hazardous wastes; disposal practices have included a number of seepage basins.

Operations of the SRP have included several hazardous waste facilities, which are operated under interim status authorization from the South Carolina Department of Health and Environmental Control ("DHEC") prior to obtaining final permits.

Under Section 6001 of the Resource Conservation and Recovery Act ("RCRA"), federal facilities and activities shall be subject, "...to and must comply with all Federal, State, interstate, and local requirements, both substantive and procedural (including any requirement for permits or reporting or any provisions for injunctive relief and such sanctions as may be imposed by a Court to enforce such relief), respecting control and abatement of solid waste or hazardous waste disposal in the same manner, and to the same extent, as any person is subject to such requirements, including the payment of reasonable service charges."

DHEC and DOE therefore hereby agree to the terms of this Order as set forth below:

FINDINGS OF FACT

1. DOE owns and administers SRP, a national defense nuclear materials production facility located in Barnwell, Aiken, and Allendale Counties in South Carolina.

2. Certain liquid wastes containing degreasers and other hazardous wastes have been introduced into seepage basins on the SRP property, which are identified on SRP's Part A hazardous waste permit application as disposal surface impoundments.

3. On September 21, 1979, DHEC instituted emergency hazardous waste management regulations. On March 31, 1980, DHEC promulgated the South Carolina Hazardous Waste Management Regulations. These regulations were amended on January 29, 1981 and on June 22, 1984.

4. Pursuant to the emergency regulations, on December 19, 1979, DOE submitted to DHEC a notification of its hazardous waste activities. On September 29, 1980, DOE submitted to DHEC an application for a hazardous waste facility permit although, at that time, DOE and the U.S. Justice Department questioned the extent of RCRA and state jurisdiction over DOE hazardous waste activities.

The September 29, 1980 submission modified the December 19, 1979 notification by excluding certain waste management units which DOE had determined were not covered by the federal program.

5. On April 2, 1981, the U.S. Environmental Protection Agency (EPA) granted DHEC interim authorization to conduct the Phase I of the Federal hazardous waste program. Phase II components A and B were granted November 18, 1982. Phase II, Component C was granted December 22, 1983. DHEC's Final Authorization application is currently before EPA for its review and approval.

6. On September 4, 1981, in accordance with its policy of cooperating

with the State, and as a follow up to a meeting with DHEC staff on August 5, 1981, DOE notified DHEC that groundwater contamination had been detected near the M-Area basin.

7. DHEC and DOE have engaged in correspondence concerning hazardous waste and groundwater protection activities at SRP, as shown by the following partial chronology:

a. After inspection of the F-, H-, and M-Area facilities, DHEC notified DOE in a February 2, 1982, letter that the areas should be in compliance with the state regulations then in force provided that quarterly ground-water monitoring reports were submitted. On June 11, 1982, DOE began submitting quarterly analytical results for RCRA monitoring wells around the seepage basins at M-, F-, and H-Areas;

b. On March 2, 1982, DHEC requested that SRP prepare a technical summary which would address the past history, present activities, and future plans for groundwater protection. This initial report supplied more information than required by certain regulations effective at the time; however in DHEC's opinion the Technical Summary did not satisfy all administrative, procedural, and technical requirements regarding hazardous waste management facilities. The preparation of the Technical Summary proceeded as follows:

August 17, 1982	DHEC and DOE met to discuss outline
October 13, 1982	DHEC and DOE met and agreed on outline
February 1983	Draft submitted to DHEC
April 6, 1983	DHEC commented on draft

April 27, 1983	DHEC and DOE met to discuss the draft
September 15, 1983	Revised draft submitted to DHEC
October 31, 1983	DHEC commented on revised draft
May 8, 1984	Final report provided to DHEC (Technical Summary of Groundwater Quality Protection Program at the Savannah River Plant, DPST 83-829)

c. On August 10, 1983, DOE submitted the results of the statistical analyses and notified DHEC that there was a preliminary indication of groundwater impact. The letter also indicated that there was a major uncertainty concerning the validity of individual groundwater monitoring data due to the sampling method used and that the following steps would be taken in order to determine whether groundwater contamination had occurred (Contamination Verification Procedures):

(1) Four replicate samples from each well will be taken and analyzed for parameters that failed this test;

(2) Sampling pumps will be installed in each monitoring well to bring the DOE sampling protocol into conformance with DHEC recommended sampling methods;

(3) Resampling of groundwater from wells that failed the test will be conducted. The results will be evaluated in an alternate statistical procedure as outlined by the Chemical Manufactures Association (CMA). However, the evaluation will not be based upon four replicate samples from each background well during each quarter as specified by CMA;

(4) Selected plume definition wells, which have been installed at the M-Area settling basin, will be sampled and analyzed for the parameters that failed the test. Wells located from the M-Area production facilities along the pipeline to the basin will be sampled;

(5) A background well that has not been affected by SRP operations has been installed upgradient of the M-Area basin. Sampling and analysis will begin for the well's eventual use as the upgradient well in the T-test for the M-Area basin; and

(6) Plans are underway for plume definition at the F- and H-Area seepage basins. The plan will include analysis of all parameters which failed the test in the plume definition wells;

d. In response to DOE's September 1983 draft L Reactor Environmental Impact Statement (EIS) on November 14, 1983, DHEC provided DOE written comments regarding F- and H-Area seepage basins impact on ground water quality. These comments were addressed by DOE in the final EIS dated May 1984.

e. On December 13-15, 1983, DHEC staff conducted an interim status inspection at SRP;

f. On December 14, 1983, DHEC and DOE met to discuss M-Area groundwater contamination cleanup. On January 6, 1984, and on February 6, 1984, DOE and DHEC transmitted their respective understandings of the meeting results. Completion and submittal of paperwork was not to deter startup of the mitigation operations.

g. On April 11, 1984, DHEC notified DOE by letter of the draft results of the December, 1983 inspection and requested a formal status report and plans for assessment and corrective action at M-, F-, and H-Areas. The requested report and plans were not specifically required by state regulations in effect at the time. However, the amendments to these regulations, which

were before the South Carolina General Assembly and on public notice, did require the requested reports. This letter also included a draft report of deficiencies in the DOE program:

(1) R.6179.3E(2) DOE failed to meet groundwater monitoring reporting deadlines;

(2) R.61-79.8L(1)(c) M-Area groundwater monitoring data was insufficient because it did not include the "Lost Lake" area. The four F-Area wells and the seven H-Area wells are insufficient in number for detection monitoring; Groundwater monitoring data for the "Lost Lake" area was submitted to DHEC on November 23, 1984, and is routinely reported quarterly. The proposal for additional monitoring at the F- and H-Area was submitted to DHEC September 1984.

(3) R.61-79.8L(3)(j)(iii) Use of M-, F-, and H-Area basins was not discontinued following the August 10, 1983, notification of a "preliminary indication of groundwater impact;" and

(4) R.61-79.8L(3)(g) Some reported data reports were deficient.

(5) R.61-79.11G Closure/Post-Closure plan for M-, F-, and H-Area basins was not satisfactory with regard to the preferred corrective action plan for F-, and H- basins. A revised plan was submitted on February 6, 1985, and is currently under review by DHEC.

h. On April 13, 1984, the U.S. District Court, Eastern District of Tennessee, ruled that DOE facilities ". . .are subject to RCRA except as to those wastes which are expressly regulated by the [Atomic Energy Act]: nuclear and radioactive materials." Legal Environmental Assistance Foundation v Hodel, 586 F. Supp. 1163 (E.D. Tenn 1984). DOE accepted this decision as applicable to all DOE facilities.

i. On April 30, 1984, DOE replied to the draft DHEC inspection

findings of April 11, 1984, and notified DHEC that DOE was in the assessment phase of the groundwater monitoring program and that a formal plan for M-Area assessment/corrective action and formal plans for the assessment and possible corrective actions at F-, and H-Areas would be provided.

j. On June 22, 1984, the amended South Carolina hazardous waste management regulation's went into effect.

k. On July 12, 1984, the groundwater protection plan required under Public Law 98-181 was provided to DHEC;

l. On July 27, 1984, DHEC transmitted its Final Interim Status Report on the December 1983 inspection to DOE, expressing DHEC's concern that DOE did not meet interim status standards in several areas. DHEC stated that a more comprehensive (groundwater monitoring) program would need to be agreed upon that would comply with R.61-79.265 Subpart F;

m. On October 5, 1984, representatives of DHEC and DOE met to discuss DOE's outline of the groundwater quality assessment plan for F-, H-, and M-Areas and the requirements for a Part B permit application;

n. In a December 13, 1984 meeting, DOE agreed to submit the proposed assessment plan in January 1985;

o. On January 31, 1985, the groundwater quality assessment plan was submitted pursuant to R.61-79.265.93(d)(2). DHEC and DOE had previously discussed the outline and proposed contents of this plan during several meetings. The plan was generally a compilation of the following information submitted previously to DHEC:

Quarterly since 1982	SRP Hazardous Waste Facilities Groundwater Monitoring Reports

May 8, 1984	Technical Summary of Groundwater Quality Protection Program at the Savannah River Plant, DPST-83-829
July 12, 1984	Groundwater Protection Plan for the Savannah River Plant, (prepared in accordance with PL98-181)
October 1, 1984	M-Area Settling Basin Closure Plan
December 14, 1984	Update of Preliminary Technical Data Summary; M-Area Groundwater Cleanup Facility (DPSTD-8269)

NOTE: There had been several discussions between DHEC and DOE on the contents of the plan, a plan outline was approved by DHEC, and DOE used State regulations in preparing the plan;

p. On April 9, 1985, DHEC provided DOE with comments concerning deficiencies of SRP's Ground Water Quality Assessment Plan dated January 31, 1985, and requested that a revised plan be submitted by May 10, 1985. This deadline was later extended to June 30, 1985.

q. Based on DHEC's review of the groundwater quality assessment plan, DHEC and DOE discussed revision of the assessment plan during an April 26, 1985 meeting. At that time, DOE expressed the belief that the January 31, 1985 plan satisfied the requirements of R.61-79.265.93(d)(2) (April 25, 1985 letter, Whitfield to King).

r. On June 28, 1985, DOE submitted a modified groundwater quality

assessment plan. It is noted for the record that DOE contends that the information contained in this plan satisfies the requirements of a first determination assessment [pursuant to R.61-79.265.93(d)(5)], and the 1984 assessment report [pursuant to R.61-79.265.94(b)(2)]. Currently DHEC has the assessment plan under review.

s. There have been at least 23 meetings between DOE and DHEC staff since September 1981, concerning groundwater at SRP. During these meetings, DOE described groundwater activities, and DHEC supplied regulatory and technical guidance.

8. On May 13-15, 1985, DHEC staff conducted an interim status inspection at SRP.

9. On June 10, 1985, by Notice of Violation, DHEC notified DOE of the following results of the May 13-15 1985, inspection:

a. The designated up-gradient well for M-Area is not representative of the background quality; It is noted for the record that DOE disagrees with the desirability of redesignation and disagrees that the original well location was not proper. SRP contends that the DHEC position is a correct, literal interpretation of DHEC regulations, but a judgement error.

b. The number, depth, and location of down-gradient monitoring wells for F-, H-, and M-Areas are insufficient to ensure the immediate detection of contamination migrating from the seepage basins;

c. The sampling and analysis plan does not accurately reflect the procedures currently in use;

d. The groundwater assessment plan was not submitted on time;

e. The quarterly groundwater quality assessment determinations were not made. It is noted for the record that DOE contends that this requirement is at least partially satisfied by its quarterly hazardous waste facility groundwater monitoring reports that were submitted to DHEC.

f. The annual groundwater quality assessment report summarizing the assessment reports for 1984 was not submitted by March 1, 1985.

10. Subsequent to the May 13-15, 1985 inspection, DHEC conducted a detailed review of the SRP files. Based on this review and information obtained during the aforementioned inspections, the following deficiencies were identified:

a. R.61-79.8L(1)(e) M-Area monitoring wells in place prior to the fourth quarter 1982 were constructed of galvanized steel. The regulation required PVC construction.

b. R.61-79.8L(3)(d) Due to the galvanized steel monitoring well components and inadequate sampling technique, an accurate baseline (initial background) groundwater quality level was not established.

c. R.61-79.8L(3)(j)(i) DOE notified DHEC more than seven days after a statistically significant change in groundwater quality had been identified.

d. R.61-79.8L(1)(d) The H-Area monitoring system did not include at least one down-gradient well positioned immediately adjacent to the active portion of the H-Area seepage basins. Although DOE does not agree, DHEC contends that the F-Area monitoring system also did not include at least one down-gradient well positioned immediately adjacent to the active portion of the F-Area seepage basin. DHEC does however acknowledge that an indication of contamination has been detected by the existing F-Area monitoring wells.

e. R.61-79.8L(3)(j)(ii) DOE failed to adequately determine the cause of the difference in groundwater quality for M-, F- and H-Areas.

f. R.61-79.8L(3)(j)(iii) DOE failed to discontinue operation of the facility until DHEC determined what actions were to be taken. On July 27, 1984, DHEC acknowledged the extenuating circumstances (national security) under which operation was continued.

12. On September 20, 1985, DOE proposed that monitoring wells, MSB-29, MSB-43, AOB-2, and ASB-9 be designated as the up-gradient wells for M-Area. This proposal is currently under review by DHEC.

13. On September 17, 1985, DOE submitted a modified sampling and analysis plan. This plan is currently under review by DHEC.

14. On July 26, 1985, a show cause conference was held to discuss the alleged violations as specified in the June 10, 1985 Notice of Violation. A number of meetings have been held to further discuss the allegations and to negotiate this Administrative Consent Order.

15. DOE has voluntarily implemented a Groundwater Contamination Remedial Action Program at M-Area: The project has proceeded as follows:

January 1983	20 GPM Pilot Air Stripper Operational
February 1984	50 GPM Pilot Air Stripper Operational
April 1985	Earlier strippers replaced with 400 GPM Production Air Stripper fully permitted by DHEC
June 1985	New well connected to 400 GPM stripper
July 1985	Five more wells connected

Under the Remedial Action Program, DOE pumps contaminated groundwater, cleans it, and discharges it through a permitted NPDES outfall. DOE has constructed an effluent treatment system so that use of the M-Area Interim Status hazardous waste facility can be discontinued. The M-Area closure plan was

submitted to DHEC and influent to the facility has been stopped. A similar treatment system will be constructed for the separations areas so that the use of the F-Area and H-Area hazardous waste facilities can be discontinued by November, 1988. Closure of these facilities will be addressed in a sitewide waste management environmental impact statement (EIS) that is currently being written.

CONCLUSIONS OF LAW

1. Prior to June 22, 1984, DOE violated the South Carolina Hazardous Waste Management Regulations R.61-79.3 and R.61-79.8, promulgated pursuant to S.C. Code Ann. Section 44-56-30 (1976), in that:

a. Analytical results of groundwater monitoring were not submitted in a timely manner, contrary to R.61-79.3E(2) [Findings of Fact 7.g(1)];

b. Some reported data excluded several of the required parameters, contrary to R.61-79.8L(3)(g) [Findings of Facts 7.g(4)];

c. The F- and H-Area monitoring system did not include at least one downgradient well positioned immediately adjacent to the active portion of the F- and H-Area seepage basins, contrary to R.61-79.8L(1)(d) [Findings of Fact 9.b];

d. M-Area monitoring wells in place prior to the fourth quarter of 1982 were constructed of galvanized steel, contrary to R.61-79.8L(1)(e) [Findings of Fact 10.a];

e. Due to the galvanized steel monitoring well components and inadequate sampling procedures, an accurate baseline (initial background) groundwater quality level was not established, contrary to R.61-79.8L(3)(d) [Findings of Fact 10.b];

f. DOE notified DHEC more than seven days after a statistically significant change in groundwater quality had been identified in M-, F-, and H-Areas, contrary to R.61-79.8L(3)(j)(i) [Findings of Fact 10.c];

g. DOE failed to adequately determine the cause of the difference in ground-water quality for M-, F- and H-Areas contrary to R.61-79.8L(3)(j)(ii) [Findings of Fact 7.c and 10.e];

h. Although DHEC has acknowledged the extenuating circumstances for continual basin operation, DOE failed to discontinue operation of M-, F-, and H-area facilities until the Department determined what actions were to be taken, contrary to R.61-79.8L(3)(j)(iii) [Findings of Fact 10.f(3)]; and,

2. DOE has violated the South Carolina Hazardous Waste Management Regulation R.61-79.265, Subpart F, promulgated June 22, 1984, pursuant to S.C. Code Ann. Section 44-56-30 (1976) in that:

a. The designated upgradient well for M-Area is not representative of background groundwater quality, contrary to R.61-79.265.91(a)(1) [Findings of Fact 9.a]. It is noted for the record that DOE disagrees with this conclusion, as described in Findings of Fact 9.a;

b. DOE did not follow two of the procedures identified in the SRP sampling and analysis plan (DPSOL-271-1-323), contrary to R.61-79.265.92(a) [Findings of Fact 9.c];

c. The groundwater quality assessment plan was submitted late, contrary to R.61-79.265.93(d)(2) [Findings of Fact 9.d];

d. The initial groundwater quality assessment report was submitted late, contrary to R.61-79.265.93(d)(5) [Findings of Fact 9.d];

e. DOE did not make complete quarterly groundwater quality assessment determinations, contrary to R.61-79.265.93(d)(7) [Findings of Fact 9.e];

f. The 1984 annual groundwater quality assessment report was submitted late, contrary to R.61-79.265.94(b)(2) [Findings of Fact 9.f];

IT IS THEREFORE ORDERED AND AGREED that DOE shall, consistent with the Memorandum of Agreement (MOA) between DOE and DHEC dated April 8, 1985:

1. Submit revisions to the groundwater quality assessment plan within thirty (30) days of receiving DHEC comments on the plan that DOE submitted on June 28, 1985. DHEC shall comment in writing by December 31, 1985. When the plan is acceptable, DHEC shall approve the plan in writing; said approval shall not be withheld unreasonably.

2. Submit a revised DOE groundwater sampling and analysis plan in accordance with R.61-79.265.92(a) within thirty (30) days of receiving DHEC comments on the plan that DOE submitted on September 17, 1985. DHEC shall comment in writing by November 15, 1985. When the plan is acceptable, DHEC shall approve the plan in writing; said approval shall not be withheld unreasonably.

3. Submit quarterly status reports for M-, F-, and H-Areas summarizing the results of determinations made under R.61-79.265.93(d)(4). The reports for the first three quarters of a year shall be submitted no later than sixty days following the end of each quarter with the first submission on or before May 30, 1986. The fourth quarter report may be combined with the annual report to be submitted pursuant to R.61-79.265.94(b) by March 1, 1986. DHEC shall approve or comment on each report within thirty days of receipt.

4. Within thirty (30) days of receiving all analytical results for the third quarter 1985 but no later than November 30, 1985, submit the results of these analyses and the determination of initial background concentrations for all monitoring parameters specified in R.61-79.265.92(b).

5. Within one hundred and twenty (120) days of DHEC approval for location, depth, and construction, but no later than that schedule as provided by DHEC during the approval of the Part B Permit Application, complete installation of monitoring wells at the compliance point at M-, F- & H-Areas. Their location, depth, and construction shall be in accordance with the requirements of compliance point monitoring wells R.61-79.264.97. NOTE:

There is currently a proposal for these wells in the February 1, 1985 Part B permit application.

6. Continue its groundwater quality assessment programs for M-, F-, and H-Areas in accordance with R.61-79.265 Subpart F, and shall not revert to detection monitoring without DHEC concurrence.

7. On or before December 9, 1985, pay twenty five thousand ($25,000) to DHEC in lieu of impending litigation to determine liability for past violations of R.61-79.3, R.61-79.8, and R.61-79.265 Subpart F.

IT IS FURTHER ORDERED AND AGREED that:

(a) DOE shall be permitted to exceed the time schedules set forth in this Administrative Consent Order only to the extent that the delay is caused by reasons entirely beyond the control of DOE or the control of any entity controlled by or under common control of DOE. In any event, the burden of establishing a basis for an extension shall be exclusively on DOE.

(b) If DOE determines it may fail to achieve any deadline set forth in this Administrative Consent Order, DOE shall submit a written report by certified mail to DHEC. Such report shall be submitted at least five (5) working days prior to the deadline anticipated to be missed and shall include:

(1) An explanation for the anticipated failure to meet the deadline;

(2) The measures taken and to be taken by DOE to minimize the delay;

(3) The timetable by which those measures will be implemented which will not be beyond the period of time reasonably necessary for completion of those activities on an expedited schedule calculated to minimize the delay.

(4) Any documentation relevant to (a) and (b).

(c) DHEC will respond in writing to any report by DOE pursuant to Paragraphs (a) and (b) of this Section by indication whether DHEC approves DOES's proposed date or time period for completion of the delayed activities. DHEC's written approval will be deemed to be incorporated into the Administrative Consent Order. If DHEC does not so approve, DHEC will so state in writing, and also state the date by which, or the time period within which, DOE shall achieve the tasks as to which the deadline applied, which written response shall be deemed to be incorporated into this Administrative Consent Order.

IT IS FURTHER ORDERED AND AGREED that failure to meet deadlines established herein or any schedule as incorporated into this Administrative Consent Order, or any other violation of the provisions of this Administrative Consent Order, shall be deemed a violation of the Hazardous Waste Management Act, and therefore shall be deemed unlawful. Upon ascertaining any such violation, the DHEC shall promptly initiate appropriate action to obtain compliance with both this Administrative Consent Order and the aforesaid Act. Such action shall be consistent with the MOA between DOE and DHEC dated April 8, 1985.

THE SOUTH CAROLINA DEPARTMENT OF
HEALTH AND ENVIRONMENTAL CONTROL

BY: Robert S. Jackson M.D.
Robert S. Jackson, M.D.
Commissioner

Date: 11/7/85
Columbia, South Carolina

WE CONSENT:

UNITED STATES DEPARTMENT OF ENERGY

C. G. Halsted
C. G. Halsted, Assistant Manager for
Health, Safety and Environment

Date: 11/7/85

Warren E. Bergholz, Jr., Chief Counsel

Date: 11/7/85

THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

Robert W. King, Jr., Assistant Deputy Commissioner - EQC

Date: 11/7/85

Approved by: Legal Office

Date: 11/7/85