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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 833D COMBAT SUPPORT GROUP (TAC)
HOLLOMAN AIR FORCE BASE NM 88330-5000

REPLY TO ATTN OF: DEV

05 JUL 1990

SUBJECT: Compliance Agreement Quarterly Report

TO: Mr. Courtland Fesmire, Environmental Engineer
US EPA, Region VI, (6H-CS)
First Interstate Bank Tower
1445 Ross Avenue
Dallas, Texas 75202-2733

1. Pursuant to the requirements set forth in Section X. REPORTING AND EXTENSIONS section of the Compliance Agreement signed on 20 December 1988, we hereby submit the sixth quarterly progress report.

2. This report will provide a brief outline of events from 1 April to 30 June 1990.

3. Documentation for the contents of the attached report is available upon request from the 833 CSG/DEV office at Holloman AFB. If you have any questions or comments please contact Sharon N. Moore, (505) 479-3931.

4. In addition to the progress report we are providing a Draft Ground Water Assessment Monitoring Outline that complies with 40 CFR 265.93. This outline is submitted in draft form and will be replaced with a final outline when our contractor accomplishes this task.

Howard E Moffitt

HOWARD E. MOFFITT
Deputy Base Civil Engineer

1 Atch
Compliance Agreement Report (2 cys)

cc: w/Atch
HQ TAC/DEEV
US EPA (Mark Peycke)
NMEID (Boyd Hamilton)
US Army COE, Omaha NE (B. Stewart)
BLM (Jim Fox)
DOI (Raymond P. Churan)
F & W Service (Tom O'Brien)
833 CSG/CC
833 CSG/JA

Readiness is our Profession

DRAFT

GROUND WATER ASSESSMENT MONITORING OUTLINE
(As required by 40 CFR 265.93a)

Prepared By

833 CSG/DEV

for

HOLLOMAN AFB, NM
Sewage Treatment Lagoons

DRAFT

GROUND WATER ASSESSMENT MONITORING OUTLINE
(As required by 40 CFR 265.93a)

1. INTRODUCTION: The purpose of this outline is to provide a plan of action in the event assessment monitoring is required at the Holloman AFB sewage treatment lagoons. The lagoon system, consisting of seven sewage lagoons, (see Fig 1) currently treats approximately 1.5 million gallons per day of both industrial and domestic wastewater originating from on-base family housing units, community support activities and industrial facilities on the base. In the past (prior to 1984), industrial waste introduced into the lagoons contained limited quantities of solvents, herbicides and pesticides, fuels, processing chemicals, and degreasers. Table 1 provides a list of hazardous wastes suspected to be discharged into the lagoons.

In recent years several contaminant studies have been conducted in the lagoons. Since PCBs were the most frequently detected and highest concentration contaminant of concern present in the lagoon sludges, it was determined that by removing the PCB contaminated sludges, nearly all other known hazardous contaminants would also be removed. A clean-up criterion of 25 ppm was chosen in accordance with the requirements of 40 CFR 761. The contaminated sludges were removed during the period of January through August 1990.

The installation of an approved ground water monitoring network was completed in July 1989. Quarterly background data for indicator parameters was accomplished at an accelerated monthly schedule of beginning in August 1989. The first semi-annual sampling event occurred in January 1990. The statistical correlations required by 40 CFR 265.93b was completed in June 1990. To date, a requirement for assessment monitoring has not been established. The remainder of this outline shall address an assessment monitoring plan should assessment monitoring be required in the future.

2. MONITOR WELL DESIGN AND CONSTRUCTION:

2.1 Requirements for New Well Placement: Evaluate regulatory requirements for the installation of new wells for the purposes of assessment monitoring.

2.2 Funding Source: Establish the funding source for the installation of new monitoring wells. Coordinate with HQ TAC/DEV.

2.3 Well Locations. Coordinate with NMEID/USEPA location of additional wells for assessment monitoring.

2.4 Drilling Equipment and Procedures: Obtain appropriate drilling permits before drilling operations begin. Will utilize a Failing 1250 air rotary drilling rig. The rig will be equipped with a LeRoy 650 cubic feet per minute/250 pounds per square inch air compressor.

2.5 Soil Sampling Equipment and Procedures: Geologist will collect "grab" samples during monitoring well drilling activities. Grab samples will be collected at five foot intervals and stored in plastic zip-lock bags and properly labeled with appropriate well number and sample depth in indelible ink.

2.5 Well Construction: See Figure 2.

2.6 Well Construction Logs: See Figure 3 - 5.

2.7 Well Development: Bail and surge wells using air lift development techniques to remove sand from the bottom of the well will proceed no sooner that 48 hours after well completion.

2.8 In-Site Permeability Testing: After wells are installed and sampled, an in-situ permeability test of the aquifer will be performed. A slug injection test will be used to determine the coefficient of transmissibility and resultant permeability.

2.9 Surveying: After the completion of drilling operations, a State of New Mexico licensed and registered surveyor will determine the vertical and horizontal position of the newly installed wells.

3. SAMPLING AND SAMPLE CUSTODY PROCEDURES: (Note: Procedures previously established in the A-E Quality Control Plan and Sampling Plan for Groundwater Study and Monitoring Program, HAFB, NM (July 1989) shall be followed).

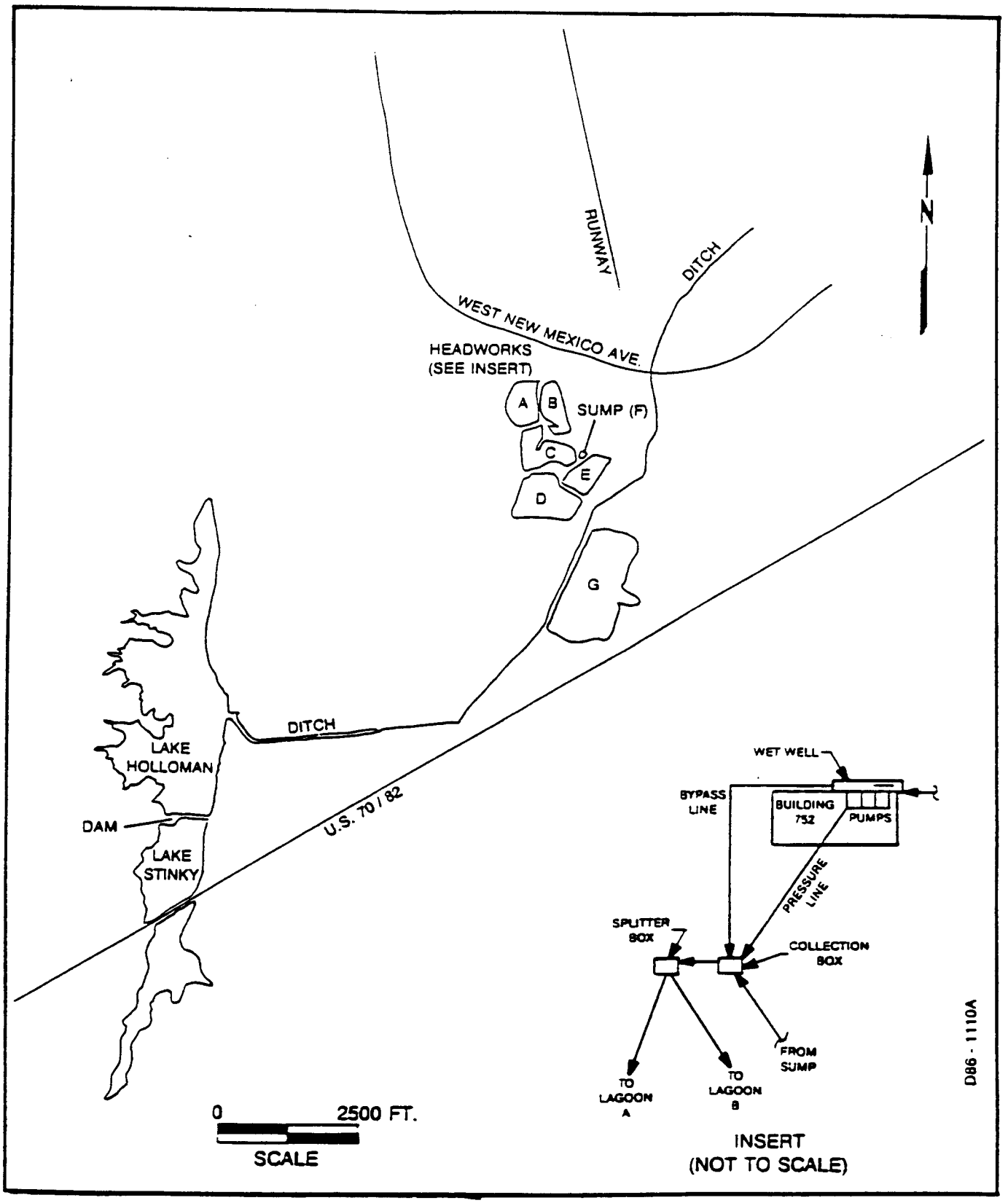

Figure 1 . Holloman Air Force Base Wastewater Treatment System Layout

TABLE 1. HAZARDOUS WASTE SUSPECTED TO BE DISCHARGED TO THE SEWAGE TREATMENT SYSTEM

Substance	Quantity	Date of Discharge
Trichloroethylene	225 gal	One time, prior to 1980
Carbon tetrachloride	200 gal	One time, prior to 1980
Freon 113	6 oz/day	Unknown to May 1984
Methyl isobutyl ketone	2 oz/mo	1980 - 1983
Trichloroethane	15 gal	One time, 1983, plus additional unknown amounts through September, 1984
Methylene chloride	unknown	1980 - 1984
Phenol	unknown	1984
Acetone	75 gal/yr	1960 - Aug. 1984
Napthalene	22 lb	One time, 1981
Toluene	10 gal	One time, 1981
Xylene	1 gal	One time, 1981
Acetonitrile	35 gal/yr	1982 - Aug. 1984
Arsenic trioxide	1000 lbs	One time, 1977 - 1978
Sodium cyanide	900 lbs	One time, 1980

Source: Delisting Proposal, Holloman Air Force Base Sewage Treatment Lagoons, Computrac, Inc., 28 August 1986.

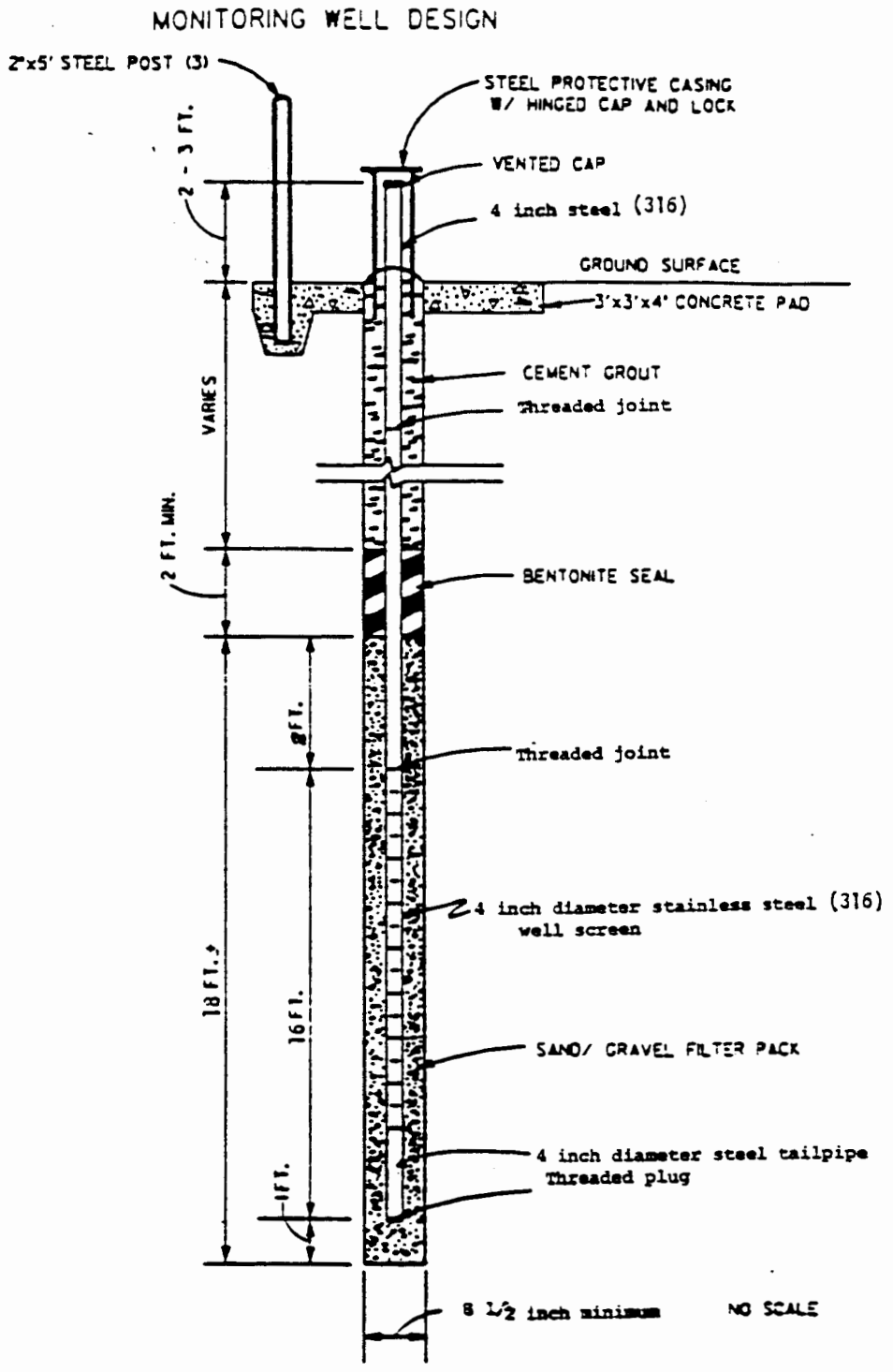

Figure 2 Schematic Diagram of Typical Monitor Well Construction, Holloman AFB, New Mexico

GROUNDWATER FIELD DATA SHEET

Parameter Description	Value
SAMPLE CONTROL NUMBER	
DATE	
TIME	
SAMPLER'S INITIALS	
WELL/BORING LOCATION	
WELL/BORING DIAMETER (in)	
ELEVATION OF TOP OF WELL CASING REFERENCED TO MEAN SEA LEVEL (MSL)	
WATER-LEVEL MEASUREMENT	
Total Depth (ft)	
Depth to Groundwater (ft)	
CALCULATIONS	
Thickness of Groundwater (ft)	
Well Volume (gallons)	
Purge Volume (gallons)	
NUMBER OF SAMPLE BOTTLES AND TYPE COLLECTED	
pH	
Conductance (μmhos)	
Temperature ($^{\circ}$C)	

COMMENTS:

Figure 3 . Groundwater Sampling Field Data Sheet

WELL COMPLETION LOG: SHEET 1/2

Boring or Well No. _____ Project _____
Location _____ Log Recorded by _____

Construction started _____ completed _____
Development started _____ completed _____

Total depth drilled (ft) _____ Hole diameter _____
Drilling method _____
Problems encountered during drilling _____
Water source for drilling and completion procedures _____

Number and type of samples collected _____
Sample interval (ft-ft) _____
Storage method(s) _____

Casing type _____ Diameter _____ Depth of casing (ft) _____
Screen type _____ Diameter _____
Slot size _____ Screen interval (ft-ft) _____
Type(s) of glue used to join casing _____

Type of gravel pack used _____ Amount of gravel pack used _____
Grain size distribution of gravel pack _____
Lithology of gravel pack _____
Source (company and quarry/pit) _____

Interval of gravel pack (ft-ft) _____
Interval of bentonite seal (ft-ft) _____
Interval of grouting (ft-ft) _____

Description of security measures _____

Padlock ID No. _____ Location of key(s) _____

Figure 4. Well Completion Log

FIgure 4 Continued

WELL COMPLETION LOG: SHEET 2

Boring or Well No. _____ Project _____
Location _____ Log Recorded by _____

CONSTRUCTION SCHEMATIC (ft)

0
5
10
15
20
25
30
35
40
45

Static level of water before _____ (ft) and after _____ (ft) development _____
Development started _____ and ended _____
Water Quantity discharged during development _____ (ft^3)
Type, size/capacity of pump or bailer used for development
_____
_____
Depth of open hole inside well _____
Before development (ft) _____ After development (ft) _____

Development Record of Discharge and Sediment

Time	Clar/Clr. Discharge	Odor of Discharge	Lithology/ Grain Size	pH	Conductivity	Remark

Sheet _____ of _____

Log of Drilling Operations

Boring or Well No. _____
Location _____
Log Recorded By _____

Project _____
Beginning _____ and end
_____ of drilling operation
Sampling Interval (Estimated) _____ (ft)
Type Drill Rig and Operator _____

Depth (ft)	Sampling Interval	ID No. of Sample Taken	Type of Sample Taken	Stratigraphy	Remarks

Figure 5 Log of Drilling Operations

COMPLIANCE AGREEMENT QUARTERLY REPORT

HOLLOMAN AIR FORCE BASE

GROUNDWATER MONITORING PLAN
AND
HYDROLOGICAL INVESTIGATION REPORT

SIXTH QUARTERLY PROGRESS REPORT

1 APRIL TO 30 JUNE 1990

PREPARED BY

HOLLOMAN AFB, NM
833 CSG/DEV

5 July 1990

QUARTERLY PROGRESS REPORT
1 April - 30 June 1990

On 4 Apr 1990 - Bradley Construction removed the aerator from Pond A.

On 5 Apr 1990 - Bradley Construction diverted the inflow to the lagoons into pond B. They also installed dewatering pumps and started dewatering pond A.

On 5 Apr 1990 - HAFB submitted to USEPA Region VI Fourth Quarterly Progress Report.

On 6 Apr 1990 - Bradley Construction closed off the connectors between Pond A and C and opened the connector between B and C.

On 11 Apr 1990 - Bradley Construction began to build the access ramp in Pond A.

On 17 Apr 1990 - HAFB received a letter from Raymond P Churan, Regional Environmental Officer, United States Department of the Interior. This letter provided DOI Departmental comments related to the Holloman AFB sewage treatment lagoons, Lake Holloman and Lake Stinky.

On 19 Apr 1990 - Bradley Construction installed the sludge pump and piping in Pond A.

On 19 Apr 1990 - Representatives from Holloman AFB and Radian Corporation met with the Bureau of Land Management (BLM) at their office in Las Cruses, NM. The purpose of the meeting was to discuss the BLMs concerns related to the Lake Holloman and Stinky and the Holloman AFB sewage treatment lagoons. It is the intention of Holloman AFB to address their concerns in the Risk Assessment (RA) presently being prepared by Radian Corporation. This RA will be a qualitative RA from an ecological standpoint. It will be quantitative from a contaminant standpoint.

On 20 Apr 1990 - Representatives from Holloman AFB and Radian Coorporation met with the Fish and Wildlife Service (F&WS). The purpose of the meeting was basically the same as the meeting held on the 19th April, i.e., to discuss their concerns, and include them in the RA. Personnel from the F&WS stressed concern for the ducks which feed from the bottom of the lakes. They requested the base consider funding a genetic study to determine if there were adverse health affect on the ducks which frequent the area. The base requested the F&WS provide to them a scope of work, including a cost estimate, for such a study. Per the memo provided by Raymond Churan, DOI (re: 17 April 1990 above) Tactical Air Command staff recently indicated their desire to work with the DOI and will consider funding their requirements with DERA funds.

On 25-29 Apr 1990 - Bradley construction completed the access ramp in Pond A.

On 7 May 1990 - the first shipment from Pond A (3 truck loads) of sludge was transported to Aptus in Coffeeville, KS to be incinerated. An estimated three truck loads were shipped every work day until 11 June 1990.

On 11 May 1990 - Mr Bruce Swanton, NMEID, contacted Ms Sharon Moore, HAFB, to discuss the presence of PCBs in five of the groundwater monitoring wells reported in the A-E Groundwater Monitoring Report/Quality Control Summary for the First Groundwater Sampling Round. This report was submitted to the USEPA Region VI and the NMEID on 24 October 1989. In August 1989, following installation of the monitoring wells and the first quarter sampling, Radian collected additional samples for a more detailed analysis to determine background levels of organic and inorganic parameters. Results of the additional sampling revealed the presence of PCBs, specifically PCB 1260, in several wells at concentrations ranging from 0.88 to 1.1 micrograms per liter (ppb) in four of the wells and 11 micrograms per liter (ppb) in one of the wells. Since the groundwater monitoring regulations (40 CFR 265.92) do not require organics to be included in the groundwater monitoring report, IT Corporation did not run a standard for PCBs prior to running method 8080 for pesticides. They did review the chromatograms for the 4th quarter and semi-annual sampling events for the characteristic peak of PCBs. The chromatograms did not reflect the presence of PCBs from these sampling events. Analytical data from IT Corporation for the second and third quarters of sampling had previously been archived and was not readily available to confirm or deny the presence of PCBs for these sampling rounds.

On 11 May 1990 - the Deputy Base Civil Engineer attempted to contact the DOI Regional Environmental Officer with regard to possible groundwater contamination in some of the monitoring wells. The Regional Environmental Officer had left the office and would not return until 21 May 1990. A message was left with another employee of the DOI for the Regional Environmental Officer to return the call.

On 18 May 1990 - the Base received analytical data for Additional Samples Collected During the First Quarter Groundwater Sampling at Holloman AFB, NM (a subset of Appendix IX parameters) and a sampling plan for the additional groundwater sampling for PCBs for all ten wells on 21-23 May.

On 21 - 23 May 1990 - Radian Corporation resampled all 10 wells for PCBs. In addition, the base requested Radian Corp to take 5 additional samples in the trenches that feed into Lake Holloman and Lake Stinky. This sampling effort was conducted in the interest of the Department of the Interior, the Bureau of Land Management and the Fish and Wildlife Service and their concerns for the safety and health of the humans and animals that frequent Lake Holloman. Three of those samples were analyzed for all parameters using method 8080, 8070, 8040, and total metals. Two of the samples were analyzed for PCBs only.

On 22 May 1990 - Mr Tom O'Brien (F&W Service) called Ms Moore (833 CSG/DEV) with regard to the meeting held on 20 April 1990. He called to discuss the outcome of the meeting and Holloman's request that they provide a scope of work and a cost estimate for the above discussed wildlife study. Ms Moore told Mr O'Brien the base was still waiting on their proposal. During this conversation Ms Moore also discussed the possible presence of PCBs in some of the groundwater monitoring wells, the ongoing resampling efforts for PCBs in all of the wells, and additional sediment sampling in the trenches which feed into Lake Holloman and Lake Stinky. Ms Moore also stated she would be willing to meet with him, the BLM, and DOI in the near future to discuss their findings and present activities related to the sewage treatment lagoons.

On 23 May 1990 - HAFB received from IT Corporation the 2nd, 3rd, 4th, and 1st Semi-annual Groundwater Sampling Reports.

On 24 May 1990 - HAFB received a Value Engineering Change Proposal to Dewater Sludge on Site from Bradley Construction Co. to reduce the transport costs (i.e., to avoid transporting water). This proposal was accepted by the USACE and Holloman AFB. The pad for the press was installed on 4-10 June 1990 and the press was installed on 22 June 1990.

On 25 May 1990 - Holloman AFB submitted the 2nd, 3rd, 4th, 1st Semi-Annual Groundwater Sampling Reports. Additionally, Holloman AFB submitted a Summary Report for Additional Samples (a subset of Appendix IX parameters) collected during the First Groundwater Sampling Round.

On 30 May 1990 - Holloman AFB received the Pre-draft Closure Plan for the Sewage Treatment Lagoons from Radian Corporation.

On 31 May 1990 - Holloman AFB received the results of recent PCB analysis. No PCBs were detected in the groundwater from the sampling event which occurred on 21-23 May 1990.

On 31 May 1990 - personnel from Holloman AFB, US Army Corp of Engineers met in Austin, TX, with Radian Corporation to discuss the Pre-draft Closure Plan, the Project Assessment Report, the Risk Assessment and recent results of groundwater samples for PCBs. During this meeting Radian Corporation presented the analysyis which indicated PCBs were not present in the wells. It was decided during this meeting that the archived data from the second and third round groundwater analysis would be required from IT Corporation. The closure plan and the risk assessment was reviewed and discussed by meeting attendees.

On 5 June 1990 - Holloman AFB received a scope of work for contaminant studies at Lake Holloman from the United States Fish and Wildlife Service.

On 7 June 1990 - the base requested the DOI provide a letter of concurrence that the scope of work provided by the Fish and Wildlife Service will address all concerns from all agencies under the DOI or otherwise submit an additional statement of work such that concerns from all agencies under the DOI would be satisfied.

On 8 June 1990 - Holloman AFB received the revised Draft Closure Plan for the Sewage Lagoons at Holloman Air Force Base, NM from Radian Corporation.

On 11 June 1990 - contaminated sludge removal from Pond A, Zone 2 was complete.

On 13 June 1990 - Holloman AFB received the Draft Quality Control Summary Report for Monitoring Well Sampling at Holloman AFB, NM. This report was specifically for the additional groundwater samples taken 21-23 May 1990 for PCBs analysis.

On 18 June 1990 - IT Corporation transmitted to Holloman AFB the Final Report for the Background Contamination Indicator Parameters Summary Statistics, Holloman AFB, NM.

On 19 June 1990 - Holloman AFB (833 CSG/DEV) received a letter from the USEPA Region VI requesting a closure plan that meets the requirements set forth in the FFCA, Section VI.D.1., to be submitted within 30 days.

On 20 June 1990 - the Final Report for the Background Contamination Indicator Parameters Summary Statistics, Holloman AFB, NM was submitted to the NMEID and the USEPA Region VI.

On 21 June 1990 - Holloman AFB provided a letter to USEPA Region VI related to discharges to waters of the United States.

On 24 June 1990 - contaminated sludge from pond A, zone 3 began.