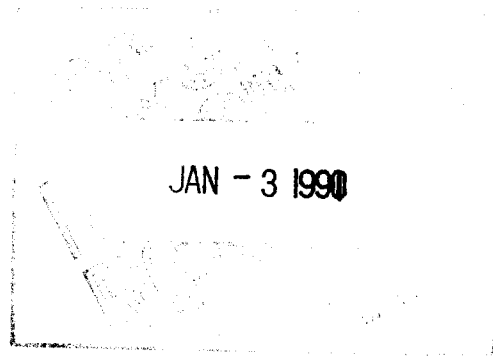




12/28/1990
DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27TH COMBAT SUPPORT GROUP (TAC)
CANNON AIR FORCE BASE NM 88103

Bruce Elizabeth



Ms. Kathleen Sisneros, Bureau Chief
Hazardous and Radioactive Waste Bureau
1190 St. Francis Drive
Sante Fe, New Mexico 87503

RE: Compliance Order/Schedule, Docket Number 901002
Cannon Air Force Base, NM7572124454

Dear Ms. Sisneros

Enclosed herein is the report requested in Item 1 of the Compliance Order/Schedule. This information reflects every instance where final closure activities for Landfill 5, Cell 3 were known to deviate from the approved plan.

Cannon AFB is in the process of awarding a contract to perform a resistivity survey to determine the location of Cell 3 per Item 2 of the Compliance Order/Schedule. A 60 day extension for the completion of this task was previously requested by Cannon AFB.

Questions concerning the enclosed report may be directed to Mr. Jim Richards at (501) 784-4639.

Sincerely

St F Glantz

STEVEN F. GLANTZ, Lt Col, USAF
Deputy Commander

1 Atch
List of Discrepancies

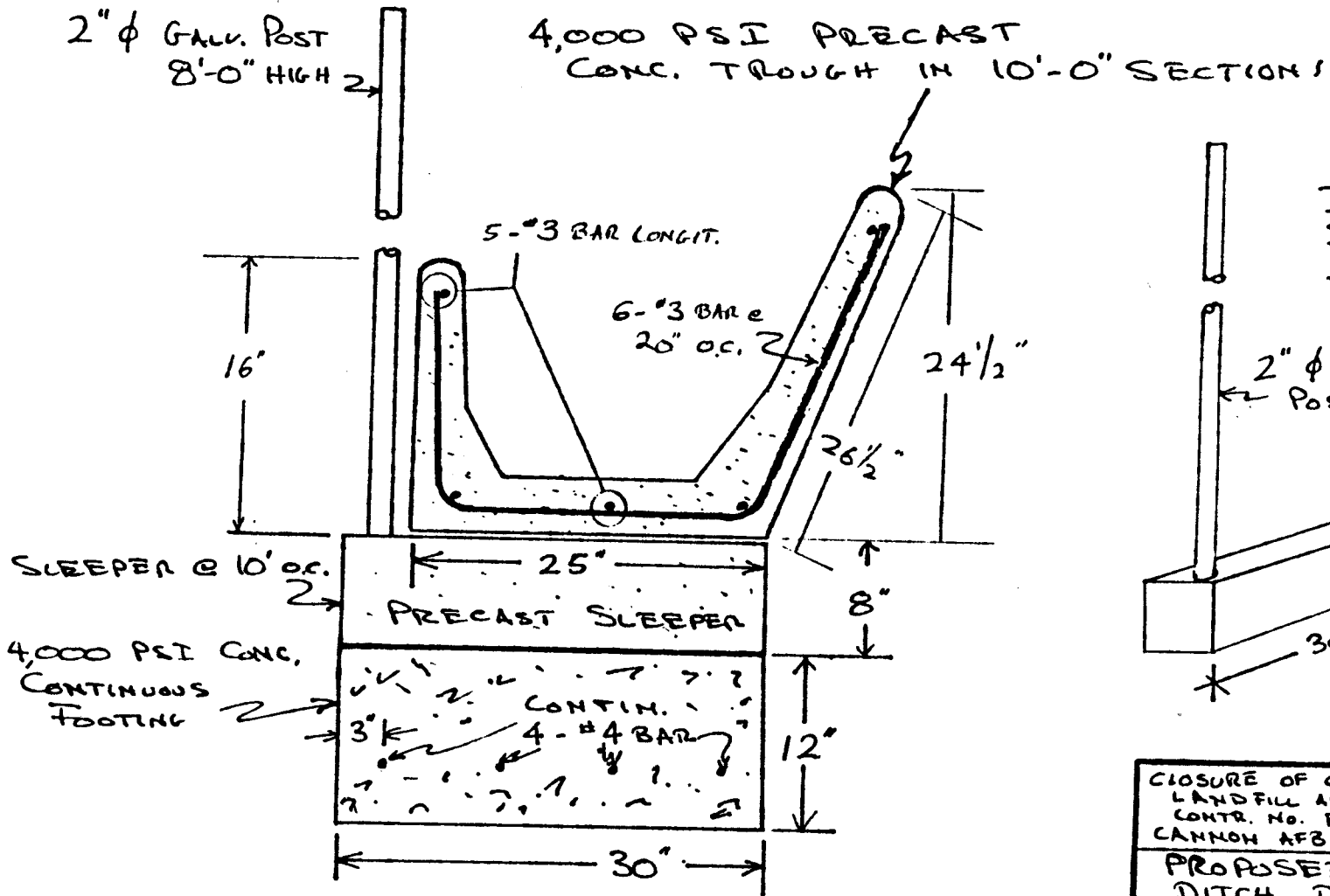
cc: Bruce Swanton, EID
Roland Jahns, AFRCE

Construction Deviations in Closure of Landfill 5, Cell 3

1. The fence post footings were installed in an eight-inch thick precast sleeper as illustrated in Figure 1. Section 3.2.1 on page 2E-2 of the Cannon Air Force Base Closure of Cell No. 3 of Landfill 5 - Designs and Specifications (Specs) document noted that the posts were to be anchored as shown in the construction drawings. Sheet 4 of the drawings indicates that the footing dimensions were to be 12x12x18 inches. The footings were originally designed assuming that the landfill material was buried 24 inches below the ground surface (Specs, Section 2B, Item 2, p. 2B-7); the footings were re-designed because landfill material was encountered 6 inches below the ground surface.
2. Section 2D on page 2D-1 of the Specs states that an earthen dike shall be constructed around the periphery of the final cover as illustrated on Sheet 4 of the construction drawings. The dike was not constructed because the relocation of the fence to within 4 inches of the gutter drain eliminated the area where the dike was to be constructed. However, the gutter drain performs the functions of the dike as described in Item 1 of Section 2D of the Specs.
3. The dimensions of the precast gutter drain (Figure 1) differ from the dimensions shown on Sheet 5 of the construction drawings. A commercially available precast gutter drain was used per Item 2.1.1 of Section 2C on page 2C-1 of the Specs. The revised gutter drain drawings were sent to the EID prior to the installation of the gutter drain.
4. The gutter drain was constructed with continuous wire reinforcement in lieu of the welded wire fabric called for in Item 2.1.2 of Section 2C on page 2C-1 of the Specs. The gutter drain was constructed with locally available precast troughs that were available only with continuous reinforcement wire.
5. A security-type chain link fence with barbed wire at the top was installed in lieu of the five-strand barbed wire fence called for in Item 1 of Section 2E on page 2E-1 of the Specs. The security-type fence will provide improved security for Cell 3.
6. Item 3.1.3 of Section 2B on Page 2B-8 of the Specs states that the clay soil mounding shall have a permeability of 10^{-6} cm/sec or less. The clay used in the soil cover actually has a permeability of 10^{-7} cm/sec.
7. Page 34 of the Closure and Post Closure Plan for Landfill Cell No. 3 at Cannon Air Force Base (Closure Plan) dated October 1988 states that a straw mulch will be applied to the soil mantle. However, the mantle was seeded with a mixture of grass and wheat seed to provide for winter vegetation.
8. Page 34 of the Closure Plan calls for a temporary watering system to be installed if rainfall is not sufficient to establish a ground cover. This requirement was waived by the EID.

9. Item 4.2 on page 2B-9, Item 7.1 on page 2B-13, and Item 10 on page 2B-24 of the Specs call for a 30 year warranty on both the geotextile fabric and the polymeric membrane liner. Correspondence from the liner manufacturer to Bradley Construction is included in Appendix A and indicates that a 20 year warranty is offered for the liner because "The oldest known installation for Hypalon is 22 years."
10. Page 25 of the Closure Plan calls for the test cap to be constructed concurrently with the final cover. Item 5 of the Bradley Construction letter in Appendix B explains why this requirement was not met.
11. Tests were not run on the test cap as required in Item 1.1.1.1 and 1.1.1.2 on page 2B-2 of Section 2B of the Specs. Time constraints as described in the above referenced letter did not allow this requirement to be satisfied. However, the tests run on the final cover have demonstrated that the cover meets or exceeds the specifications set forth in the Specs and the Closure Plan. Conversations with the EID indicated that the test cap was constructed for the EID for the purpose of conducting tests in the future if the need arose.
12. The final cover was not constructed over the location of Cell 3 as shown on Sheet 2 of the construction drawings. The settling of Cell 3 was noted during field observations and indicated that the cell had a northwest-southeast orientation. This observation was confirmed by aerial photographs of the Landfill that were recorded while the Landfill was active. The final cover was, therefore, relocated 15 feet west and rotated approximately 30 degrees from the location shown in the construction drawings to correspond with the depression in the ground surface created by the settling of Cell 3.

FIGURE 1



CLOSURE OF CELL NO. 3
LANDFILL AREA 5
CONTR. NO. F29605-89-C0009
CANNON AFB, NEW MEXICO

PROPOSED DRAIN
DITCH DETAIL

CEL 3
SK 01

PA
7-14
'89

Bradley Construction, Inc.
830 Washington, NE
Albuquerque, NM 87113
(505) 822-2800
1 800-432 5478 in state

APPENDIX A

STEVENS

ELASTOMERICS

Post-It™ brand fax transmittal memo 7671		# of pages » 2	
To	Phil Armstrong	From	Bob Janik
Co.	Bradley Const.	Co.	JPS
Dept.		Phone #	413-582-1045
Fax #	505 823 2860	Fax #	413 584 6348

June 22, 1989

Mr. Philip Armstrong
BRADLEY CONSTRUCTION
8300 Washington, NE
Albuquerque, New Mexico 87113

Dear Mr. Armstrong:

In response to your fax on June 21, 1989, please reference the following items:

Page 2B-13, Section 7.1

Third Paragraph- Stevens offers a 20 year pro-rated weathering and material defects warranty. The oldest known installation for Hypalon is 22 years.

Fourth Paragraph- Sulfuric acid @ 50% is unacceptable. Our data indicates that 25% is the maximum concentration that is compatible with Hypalon.

Fifth Paragraph- It is the responsibility of the installer to use appropriate procedures to insure that the membrane is not damaged during installation.

Page 2B-13, Section 7.1.1

- Accelerated Weathering
- Federal Test Method- CCC-7-191
- Not tested, no data

Page 2B-14

Modulus of Elasticity, ASTM D882 - not tested
no data

Retention Efficiency, VTM-51-79 - not tested
no data

Resistance Seam Strength - responsibility of the fabricator.

All other properties in section 7.1.1 are within the published specifications for 36 mil, industrial grade Hypalon.

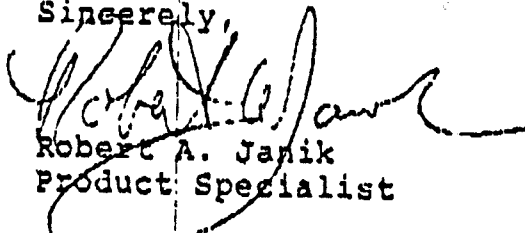
Page 2B-14, section 7.1.2

Density, melt flow index and relative solute viscosity are not applicable. Percent volatile content and percent carbon black meets Stevens' product properties and performance requirements.

All other sections that pertain to the manufacturers' requirements are acceptable.

If you have any questions or if I can be of any assistance to you, please feel free to contact me.

Sincerely,



Robert A. Janik
Product Specialist

RAJ/lms

cc: Mr. Richard Taylor
Mr. Gary Markle
Ms. Julie Cox

APPENDIX B



Bradley

GENERAL CONTRACTORS
 CRL3-023

April 19, 1990

Base Contracting Division
 27 TFW/LGCK Building 150
 Cannon AFB, New Mexico 88103-5320

(505) 784-2948
 FAX 784-2941

Attn: Mrs. Caroline Ponca, Contracting Officer
 Ref: Closure of Cell No. 3, Landfill Area No. 5
 F29605-89-C-0009
 Cannon AFB, NM
 Subj: Warranty Work Per Your April 3, 1990 Letter

Dear Mrs. Ponca,

In response to cited letter, please accept this as our response to the items therein.

Regarding field changes to plan details, Bradley Construction, Inc. made a few approved changes in order to expedite the project by taking advantage of locally available material or in recognition of local conditions. These are listed below:

1. Our field forces encountered landfill debris while rough-grading the area prior to installing the clay cap layer. This led us to deduce that the top covering layer was not placed to meet a certain uniform elevation above mean sea level, as we had to grade to in our contract, but was placed as a thickness above the landfill contents. Because of this close encounter with the debris, we had to immediately effectuate a working solution to install all the necessary layers and get the best available slope on the drain gutter. Therefore, it was logically decided, in the field with concurrence from all parties involved in the contract, that we would establish the clay cap subgrade at a certain elevation which would allow other components to properly function.

At that point we elected to use the available pre-cast trough units from the local supplier rather than re-design the drain trough. This did require us to re-design the footing, but that was simple enough for us to quickly handle.

Therefore, the first change was the recognition that the existing subgrade was not uniform. Since our cap had to be installed fairly uniformly, we established the rough subgrade at an elevation a bit above where we thought we would otherwise have used. This activity was performed in accord with the requirements of Spec. Sect. 2B-2.1.

Bradley Construction, Inc. April 19, 1990
to Cannon Air Force Base (LGCK) Contracting

2. The second difference was the use of clay with a lower permeability than specified. We were able to find a local source of clay with a permeability of 10 to the minus 7 permeability which is less permeable than the 10 to the minus 6 clay specified. This was done at no additional cost to the Government.

3. The third difference, mentioned above, was the installation of differently shaped drain trough components. The footing was installed as a continuous, continuously reinforced with concrete reinforcing bars in lieu of welded wire fabric, concrete structure, one foot thick to provide a stable base for the drain trough units. The footing is able to bridge any weak soil pockets which may develop, as often happens along the edges of landfill cells. The footing is also able to resist lateral earth pressures from the call cap. This feature was enhanced by the added sloped fill we installed at the outboard side of the drain trough.

The drain trough was installed using locally available units which were installed to drain the runoff from the cap along the available gradient at the site. This change was approved prior to implementation. This change carries the added feature of having locally available replacement units should the need arise.

4. The fourth difference is that we installed a security-type chain link fence with barbed wire at the top in lieu of the barbed wire fence specified. Again this was approved by all parties prior to beginning. This fence provides greater security and was installed at no increase in costs to the Government.

5. As we mentioned previously, there was not enough time in the contract to do a test cap, wait around for reviews and then start the real one. We were only dealing with soils and other products with which we were familiar from other projects. To wait for approval and delivery of enough hypalon for the test cap would have consumed 30 to 35 calendar days of the 70 day contract. Whoever wrote the ideal situation as desired had no idea of reality pertaining to field operations and event sequence timing. It was essentially impossible to do it the way the contract desired. Therefore, with concurrence of those involved with the reality of the contract, we did it differently. We put the main principal contract work as the priority. We were always confident that we would install the soil layers and special products to conform to the contract and perform the desired result.

6. We had no quality control issues which deviated from norms established in the construction industry. The clay soil moisture content varied from optimum a bit, but that is entirely normal. We rolled the soil, expending sufficient compactive effort to obtain required relative density. The soil compaction was tested and all tested areas passed by meeting or exceeding the minimum required relative density.

We brought in the manufacturer's regional representative to help us assure that we installed the hypalon correctly.

Bradley Construction, Inc. April 19, 1990
to Cannon Air Force Base (LGCK) Contracting

The clay soil and the hypalon seemed to us to be the guts of the cap system. We got better clay than required and had the added quality assurance of the hypalon installation expert on site for that operation. We provided better than required components for the drain trench and fence in an effort to install something which would exceed contract requirements. We thought that everybody knew that as the site was visited daily by any number of the Government's representatives.

The above outlines the operation the way we saw it as we did it as well as how we now see it. The variances were dictated by job and local conditions.

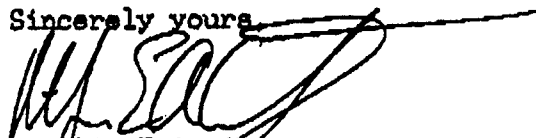
Again, the mentioned presence of methylene chloride in an IT Corporation report. Please refer to the information in the attached copy of an April 2, 1990, IT Corporation letter which reports that the lab blanks for the days involved show no presence of methylene chloride in the lab. This should again put the issue to rest. If we can be of further assistance, please let us know.

We are having trouble understanding what other actions we can do regarding a Warranty response under the Warranty of Construction contract clause. If this letter is not sufficient, please let us know what else you want.

If you don't tell us to do anything else, we will properly conclude that we have your agreement that this letter is sufficient response to your April 3, 1990, letter and that all open Warranty issues are herewith fully resolved.

Thank you for your time and attention to this matter.

Sincerely yours,



Phillip E.A. Armstrong
Senior Project Manager

cc: J. Bradley



**INTERNATIONAL
TECHNOLOGY
CORPORATION**

April 2, 1990

RECEIVED
APR 16 1990

BRADLEY CONSTRUCTION

Mr. Phil Armstrong
Senior Project Manager
Bradley Construction Company
830 Washington, NE
Albuquerque, New Mexico 87113

Project No. B3515K.01

Analytical Results Review, Cannon Air Force Base

Dear Phil,

At your request I have reviewed the volatile organic analytical (VOA) results of Industrial Hygiene measurements performed during the construction of the Cell 3 landfill cap at Cannon Air Force Base (CAFB), New Mexico. With the exception of very low levels of methylene chloride, analyses indicated an absence of volatile organics of industrial hygiene concern in the breathing zone of site workers.

In order to address the concerns of the New Mexico Environmental Improvement Division (NM EID), I contacted the IT laboratory in Austin, Texas, requesting a detailed examination of laboratory analytical records for the days of analysis of the CAFB samples. Their review indicated the laboratory blank sample was free from methylene chloride contamination. This indicates the reported values for methylene chloride were actual concentrations, not laboratory contamination.

The results indicate very little methylene chloride was present. The actual exposure of personnel was a maximum of 1/250th of the 50 ppm Threshold Limit Value[®] for this material, presenting no appreciable health hazard to site personnel.

It is not possible to identify a source of contamination. Methylene chloride is found in paints, paint strippers, some agricultural materials, building materials, etc. This fact, in combination with the very low levels of methylene chloride found, produces the inability to identify a discreet source for this material.

Very truly yours,


Brian G. Klenk, IHIT
Health and Safety Manager

cc: File

Regional Office

5301 Central Avenue, N.E. • Suite 700 • Albuquerque, New Mexico 87108 • (505) 262-8800

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