discovery by Buyer of the alleged deficiency, which notice shall include a detailed explanation of the alleged deficiency, (ii) the goods containing the alleged deficiency are promptly returned to Seller, F.O.B. Seller's plant, and (iii) Seller's examination of such goods discloses to Seller's satisfaction that such alleged deficiency actually exists and occurred in the course of proper and normal use and was not caused by accident, misuse, neglect, alteration or improper installation, repair or testing. If any goods so prove to contain a deficiency and Seller elects to repair or replace them, Seller shall have a reasonable time to make such repairs or replacement. If the contract calls for systems design, drawings, technical advice, services or instructions (collectively "Services") by Seller in connection with the goods, Seller further warrants for the above stated warranty period solely that such Services will be undertaken in accordance with Seller's reasonable technical judgment based on Seller's understanding of the pertinent technical data as of the date of performance of such Services. THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGMENT, AND OF ANY OTHER OBLIGATION ON THE PART OF SELLER.

(b) It shall be the responsibility of Buyer to determine, on the basis of the most current written technical data, the suitability of the goods and of any system design or drawings for the intended use and their compliance with appliable laws, regulations, codes and standards and the Buyer assumes all risks pertaining thereto.

11. LIMITATION OF LIABILITY AND INDEMNITY: Notwithstanding any other provision herein or in any other document or communication, (a) Seller's liability and obligations with respect to any claim(s) resulting or arising from or relating to this agreement, whether in contract, strict liability, tort or otherwise, shall in no event exceed in the aggregate the total purchase price received by Seller for the goods delivered hereunder (or, in the case of obligations arising from or relating to particular goods delivered hereunder or Services rendered in connection herewith, the purchase price of such goods or amount received by Seller for such Services, respectively), and (b) Seller shall in no event be liable to Buyer or any other person or entity, whether in contract, strict liability, tort or otherwise, for loss of or damage to or loss of use of facilities or other property, loss of revenue, loss of use of revenue, loss of anticipated profits, cost of replacement fuel or other incidental, indirect or consequential damages of any kind whatsoever, or claims of any customers of Buyer or other claimants, resulting or arising from or relating to this agreement or Seller's performance of its obligations hereunder. By accepting delivery of the products ordered, Buyer agrees that it indemnifies and holds harmless Seller from and against all claims, loss, damage and liability, including without limitation for personal injury, property damage or commercial loss of whatever kind, directly or indirectly arising from or relating to the hazards inherent in the Buyer's facilities or activities.

APPENDIX J

TRACETEK CABLE AND PANEL INFORMATION

TraceTek Leak Detection System
JOB: ATT&T Bell Labs
Indian Hill Facility
Amazing Construction Co., Inc.
March 23, 1990
Attention: Gene Rio

9851 South 76th Avenue
Bridgeview, Illinois 60455
708-430-3000
Telefax: 708-430-0195

'IAUND, RICHARDS & ASSOCIATES, INC.
Engineers Representatives Distributors

TraceTek®

Leak Detection and Location

Piping is the vulnerable component in your underground tank system design. Enclosed is a copy of "The Problems with Piping", reprinted from the Steel Tank Institute's "Tank Talk" Newsletter. The article highlights the reality that there are numerous causes of piping leaks and that given current technology and construction the situation is not likely to improve soon.

Fortunately there is a common sense solution to piping leaks: double containment with leak detection. The combination of containment and detection assures that leaks from piping are exluded from the environment protecting the tank owner from major cleanup liability. The second enclosed article, "Exploring the Options for Leak Detection on Piping Systems" is also from "Tank Talk".

The TraceTek sensing cable provides distributed leak detection at all potential leak points throughout the system. TraceTek also pinpoints leak location so that repairs can be made with minimal facility disruption. Call us for more information on TraceTek, the best available technology for protection from piping leaks.

Very truly yours,

Bill Edwards

Bill Edwards

P.S.

We would be pleased to send you our TraceTek Application Guide for Environmental Protection. Use the TraceTek fax form on the back side of this letter.

Raychem TraceTek

System Guide

for Aqueous Chemical Sensing

TraceTek® 300 Longline System

Description

The TraceTek 300 longline system provides distributed leak detection and location over a range of areas, including pipes, trenches, large floor surfaces, and subfloors. The TraceTek sensing cable detects and pinpoints leaks of aqueous chemicals at any location along its length. The alarm and locator module displays the distance to the leak.

The TraceTek 300 longline system includes sensing cable and sensing circuit components (leader cable, jumper cable, end termination, weighted length, and branching connector) with preinstalled metal connectors. All components of the sensing circuit simply plug together.

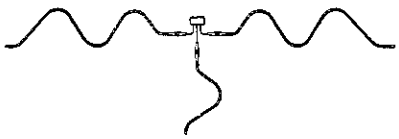
Design Information

The longline system consists of the alarm and locator module and one run of sensing cable with an end termination. Jumper cable is used for all interconnections. The alarm and locator module monitors up to 1,500 feet or 500 meters of sensing cable.

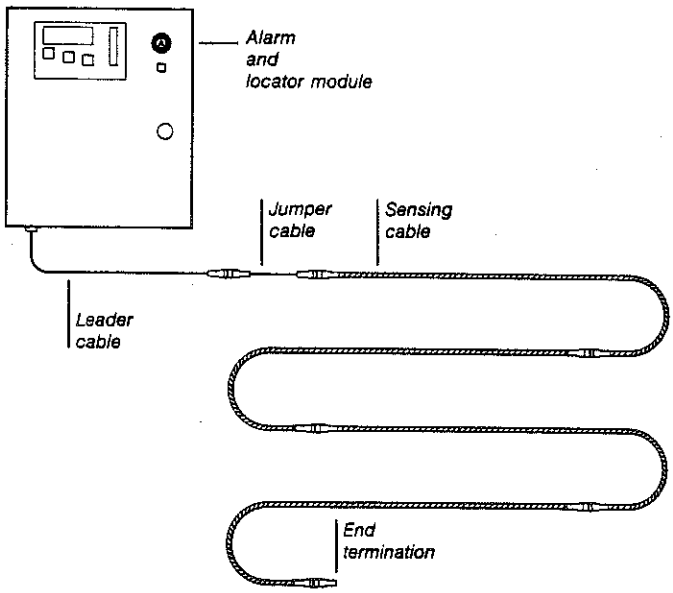
*The **weighted length** resistor simulates a 15-foot (5-meter) length of sensing cable. Installed at the border between two areas, it allows the user to clearly identify in which area the leak has occurred.*

*The **branching connector** enables the sensing cable to be T-branched. An end termination completes the branch. At the branching connector, the system first counts the sensing cable along the branch (middle connector), before it continues with the main run. Two built-in, 15-foot (5-meter) weighted length resistors allow the user to clearly identify where the leak has occurred near the branching connector.*

Weighted Length

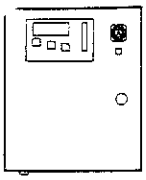
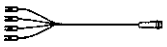
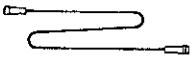
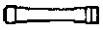


Branching Connector



Longline System

TraceTek 300 Longline System

		Catalog Number
Alarm and locator module 	*Metal enclosure* *Display* *F – 1–1,500 feet* *M – 1–500 meters* *Supply voltage* *A – 120/240 VAC* *D – 24 VDC* *Optional accessories* *4–20 mA current transmitter* *Separate continuity relay* *Semiflush mounting flange*	TTB-xx TTB-CTR TTB-REL TTB-FLG
TraceTek 300 sensing cable	*Modular sensing cable with metal connectors* *Cable length* *5 – 5 feet (1.5 meters)* *10 – 10 feet (3 meters)* *25 – 25 feet (7.5 meters)* *50 – 50 feet (15 meters)*	TT300-MSC-x-MC
Leader cable 	*Modular leader cable, 12 feet (3.5 meters) with metal connectors*	TT-MLC-MC
Jumper cable 	*Modular cable with metal connectors* *Cable length* *25 – 25 feet (7.5 meters)* *50 – 50 feet (15 meters)* *100 – 100 feet (30 meters)*	TT-MJC-x-MC
End termination	*Metal connector version, terminates sensing cable and cable branches*	TT-MET-MC
Weighted length 	*Metal connector version, simulates 15-foot (5-meter) length of sensing cable at the point installed*	TT-WL-15-MC
Branching connector	*Metal connector version, connects a sensing cable branch to the sensing circuit*	TT-MBC-MC
Caution tags	*50 sensing cable identification markers*	TT-TAG
Hold-down clips	*50 clips that attach sensing cable to flat surfaces*	TT-HDC-1/4

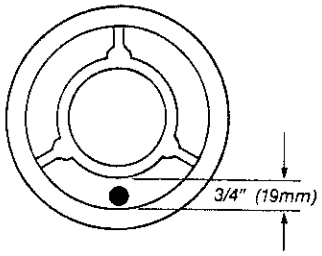
UL Listed FM APPROVED

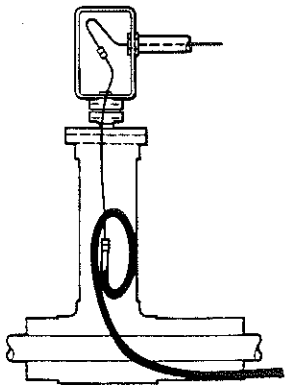
Raychem Corporation
TraceTek® Products Group
300 Constitution Drive
Menlo Park, CA 94025-1164
415) 361 4602
TWX 910 373 1728
TLX 348 316

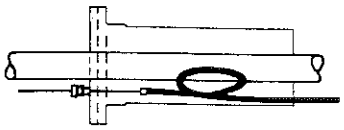
All information presented here, including illustrations, is believed to be reliable and in accordance with accepted engineering practice. However, Raychem makes no warranties as to the completeness of the information. Users should evaluate the suitability of each product for their own particular application. Raychem's only obligations are those set forth in the Standard Terms and Conditions of Sale for this product. In no case will Raychem be liable for any incidental, indirect, or consequential damages arising from the sale, resale, or misuse of the product.

Application: Pipes

System Details



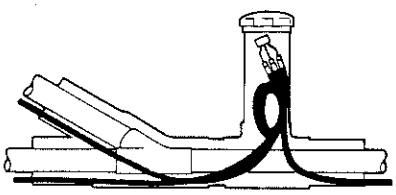


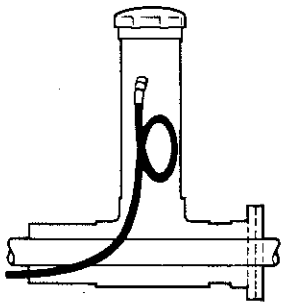


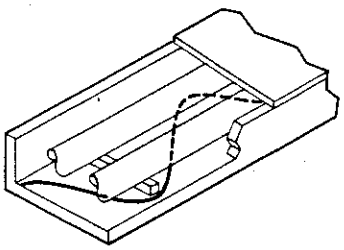
Pipe clearance area
The minimum clearance area required between the primary and secondary pipe is 3/4″ at the 6 o'clock position. This clearance must be provided throughout the pipe run.

Cable entry access
Jumper cable enters the annulus of a vertical pipe at the cable entry access through a jumper feed-through fitting with sealing grommet.

Jumper cable enters the annulus of a horizontal pipe through a jumper feedthrough fitting at the cable entry access.







Cable branching access
This access point contains the sensing cable branching connector. The access should be located downstream so that the sensing cable is not pulled around sharp angles.

Cable termination access
This access is required at each sensing cable end termination.

Trenches
Sensing cable is installed beneath pipes and pipe supports and secured with hold-down clips. The cable is snaked back and forth, touching each side of the trench.

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Raychem

TraceTek®

TTB Alarm and Locator Module
Product Data

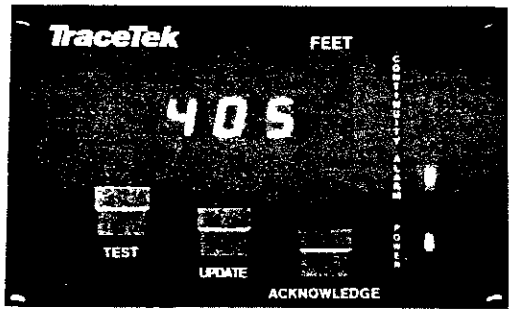
Raychem's TraceTek® Alarm and Locator Module (type TTB) is designed for use with TraceTek Sensing Cable to detect fluid leaks. When liquid contacts the sensing cable, an alarm sounds, and the LED display indicates the distance to the contact.

Versatile design
The metal enclosure of the TTB Alarm and Locator Module can be semi-flush or surface-mounted. The audible alarm (95 dB) is easily heard above the operating noise of typical computer or process equipment. The module operates from 120/240 volts AC or 24 volts DC, and the digital readout can display distances in feet, meters, or by zone number. Relay contacts enable an additional alarm to be placed at a remote location. In addition, a continuity relay can be installed to remotely identify alarms caused by a break in the sensing cable. An optional 4-20 milliamp current transmitter can be integrated into the TTB enclosure, permitting the alarm and locator module to interface with data processing systems.

Simple operation
When the leaking fluid contacts the cable, the alarm sounds. The digital display of the module then locks onto the location of the initial contact point with the cable. The operator silences the alarm by depressing the external "acknowledge" button. The locked metal enclosure protects the other module controls from unauthorized access.

Reliable performance
The LEDs located on the module faceplate indicate "power," "alarm" and "continuity." Any loss of system integrity, whether caused by an interruption in power or a cut in a cable, will be acknowledged by the module panel display or relay output. A test feature allows the user to check system operations.

UL Listed FM Approved CSA Approved



ACKNOWLEDGE

Raychem

TraceTek®

Sensing and Locating Systems

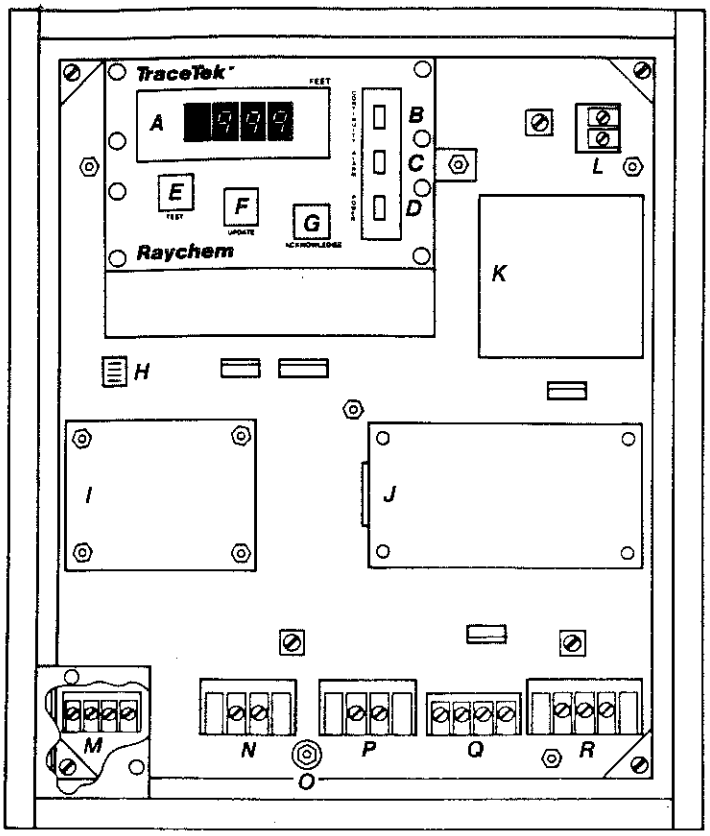
When This Unit Alarms:

1. **Press the red acknowledge button to silence the alarm.**
2. **Write down the value displayed in the digital window.**
3. **Use system map posted adjacent to this unit to locate the source of alarm.**

NOTE: ***Alarm without digital readout may indicate cable damage.***

See inside of front panel for detailed operating instructions.

TTB Alarm and Locator Module



Internal module functions

A Display
Indicates distance to leak (latches onto initial point of fluid contact with cable) and holds until updated.

B Continuity fault indicator
Yellow LED indicates system has detected a break in the cable.

C Primary fault indicator
Red LED indicates alarm condition.

D Power monitor
Green LED indicates system is on.

E Test button
Initiates internal test of all functions and displays total length of sensing cable.

F Update button
Resets system leak location circuits.

G Acknowledge button
Silences alarm. Resets external alarm. An additional acknowledge button is located on the face of the enclosure.

H DIP switch
Disconnects loud alarm and allows automatic update operation. (*Only* for use with 4-20 mA current transmitter.)

I Mounting pad
Accommodates optional continuity relay.

J Mounting pad
Accommodates optional 4-20 mA current transmitter.

K Mounting pad
Accommodates optional 24 VDC power system.

L 24 VDC power input
(optional)

M Sensing cable terminal block
Power hook-up for sensing cable.

N 120 VAC power input

O AC ground terminal

P 240 VAC power input

Q Analog interface
Power hook-up for optional 4-20 mA current transmitter.

R Relay output
Power hook-up for optional alarm relay (rated 3 amps at 120 volts AC).

Technical information

Dimensions	14" high 12" wide 4" deep
With flange	17" high 15" wide 4" deep
Alarm buzzer	95 decibels
Metal enclosure	NEMA type 1 enclosure
Power consumption	Maximum AC input 0.1A

UL File No. S3260
FM File No. 2K4A9.AX
CSA Report No. LR 61900-2

Options:

Supply voltage	120/240 VAC (optional 24 VDC)
Display	1-1,500 feet 1-500 meters 1-50 zones
Current transmitter	Allows the transfer of leak location information from the alarm module to any instrument capable of interpreting a 4-20 mA analog signal.
Continuity relay	Provides a remote alarm relay which indicates a break in sensing cable continuity.

Ordering information

TTB-XX — TTB Alarm and Locator Module

Display
- F - 1-1,500 feet
- M - 1-500 meters
- Z - 1-50 zones

Supply voltage
- A - 120/240 VAC
- D - 24 VDC

Optional accessories:
- TTB-CTR 4-20 mA current transmitter
- TTB-REL Separate continuity relay
- TTB-FLG Semi-flush mounting flange

Call us

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APPENDIX K

DEVELOPER MSDS SHEETS AND MEMORANDUM

AT&T

AT&T Bell Laboratories

subject: Concentrated Waste Storage Tank System

date: January 4, 1991

from: P. M. Dowd
IH 77874
8B-110 x9-4649

MEMORANDUM FOR RECORD

The original design of the Concentrated Waste Storage Tank System (CWSTS) required all process tanks and equipment associated with the production of prototype printed circuit boards be connected to the system. The process equipment includes a developer which removes photoresist from the printed circuit boards. The photoresist is used to define the circuit area prior to any metals being plated onto the PC boards. The developer solution is changed after processing approximately 500 PC boards. At this point the solution becomes saturated with photoresist and is no longer effective.

The solution used in the developer is manufactured by Dynachem Electronic Materials and is a potassium carbonate and water solution. The photoresist is also manufactured by Dynachem and consists of a solid film of acrylic monomers. The Material Safety Data Sheet (MSDS) for the developer solution and the photoresist are attached for reference.

Neither the photoresist nor the developer contain any heavy metals. The PC boards which are processed in the developer do not contain any heavy metals. The developer solution does not meet the definition of a listed hazardous waste or contain any materials which would cause the solution to be classified as a characteristic hazardous waste. The developer solution does not contain any materials or characteristics which are regulated by the local sewer use ordinance.

If the developer solution were discharged to the CWSTS it would become a hazardous waste by the mixture rule. Therefore, it is recommended that the developer be discharged to the sanitary sewer.

Patrick M. Dowd

IH-77874-PMD-pmd

Patrick M. Dowd, P.E.

Attachment
as above

January 4, 1991

Copy (w/out attachs.) to:
R. G. Dinsmore
B. A. Greig
J. G. Hughes
J. M. Morabito
P. E. Wyszkowski

Copy (with attachs.) to:
F. J. Girdwain

MORTON INTERNATIONAL

Dynachem Electronic Materials
2631 Michelle Drive, Tustin, CA 92680
(714) 730-4200

MATERIAL SAFETY DATA SHEET

Date Prepared: 5/29/90
Supercedes: 5/31/89

****

SECTION I - PRODUCT IDENTIFICATION

****

PRODUCT NAME: Laminar(R) Developer KB-1A

****

SECTION II - HAZARDOUS INGREDIENTS

****

INGREDIENT	CAS NO.	PERCENT	EXPOSURE LIMITS
Potassium Carbonate	584-08-7	20-30	Not established

****

SECTION III - PHYSICAL DATA

****

PROPERTY	REFERENCE	MEASUREMENT
Boiling Point (F)		>212
Vapor Pressure (mm Hg.)		15
Vapor Density	(H2O =1) (Approximate)	1
Solubility in Water		Complete
Specific Gravity	(H2O=1)	1.24
Percent Volatiles (Vol. %)		70-80 (as H2O)
Evaporation Rate	(H2O=1)	1
Appearance and Odor	Water-white liquid; no odor.	

****

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

****

Flash Point (Closed Cup): None - aqueous solution

ower Explosive Limit: N/A (Not Applicable)
Upper Explosive Limit: N/A

Extinguishing Media: N/A

PRODUCT IDENTIFICATION: LAMINAR(R) Developer KB-1A

****

SECTION IV- FIRE AND EXPLOSION HAZARD DATA (CONT'D.)

****

Special Firefighting Procedures: Product will not burn. However, firefighters should wear self-contained breathing apparatus with full facemask and full protective clothing/equipment, in case of splashing or spilled product in the fire area.

Unusual Fire and Explosion Hazards: N/A

****

SECTION V - HEALTH HAZARD DATA

****

Primary Routes of Exposure: Eye and skin contact, inhalation.

Health Hazards and Effects of Overexposure:
Eye contact: Contact with liquid or mist may cause irritation.

Skin contact: Contact with liquid or mist may cause irritation. Prolonged or repeated exposure may cause dermatitis.

halation: Mist inhalation can cause upper respiratory tract irritation.

Skin absorption: Not expected to be a significant route of exposure.

Ingestion: Swallowing may cause irritation to the mucous membranes of the mouth, throat and gastrointestinal tract.

First Aid: EYES: immediately flush with plenty of water for at least 15 minutes. Call a physician. SKIN: flush thoroughly with plenty of water. Remove contaminated clothing and wash before re-use. INHALATION: remove to fresh air; if breathing is difficult, call a physician. INGESTION: DO NOT induce vomiting. Give large quantities of water and call a physician immediately.

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON

Medical Conditions Generally Aggravated by Exposure: Not established.

PRODUCT IDENTIFICATION: LAMINAR(R) Developer KB-1A

****

SECTION VI - REACTIVITY DATA

****

Stability: Stable.

Incompatibility: Avoid contact with acidic materials.

Hazardous Decomposition Products: When potassium carbonate is heated to decomposition, toxic fumes of K2O are emitted. CO2 may be generated if reacted with acids.

Hazardous Polymerization: Will not occur.

****

SECTION VII - SPILL OR LEAK PROCEDURES

****

Steps to be Taken in Case Material is Released or Spilled: Wear protective clothing/equipment described in Sec. VIII. Absorb spill with inert absorbent material and transfer to a suitable container for disposal. Following removal of absorbents, flush spill site with plenty of water to remove final traces.

Waste Disposal Method: Waste drums containing contaminated absorbents may be sent to an approved chemical waste landfill if permitted by federal, state and local regulations. Solidification of free liquid may be required prior to landfilling.

****

SECTION VIII - CONTROL MEASURES

****

Respiratory Protection: Not required in normal use. If misting is a problem, wear a NIOSH/MSHA approved mist respirator with full facemask. Comply with 29 CFR 1910.134.

Ventilation: Local exhaust ventilation sufficient to control misting if present.

Protective Gloves: Rubber.

Eye Protection: Chemical safety goggles.

Other Protective Equipment: Rubber apron. Eyewash fountain, safety shower. Normal washing facilities convenient to the work area.

PRODUCT IDENTIFICATION: LAMINAR(R) Developer KB-1A

****

SECTION IX - SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

****

Avoid contact with eyes, skin and clothing. Wash thoroughly after handling; remove contaminated clothing and wash before re-use. (Destroy heavily contaminated shoes).

Avoid breathing mist or vapor. Use with adequate ventilation. Keep container closed.

Store between 40-100F (4-38C) and away from incompatibles (Sec. VI).

Do not take internally. FOR INDUSTRIAL USE ONLY.

Since emptied container retain product residue, follow safety precautions even after container is emptied.

NFPA Rating:
Health: 1 Flammability: 0 Reactivity: 0

PRODUCT IDENTIFICATION: LAMINAR(R) Developer KB-1A

****

SECTION X - REGULATORY INFORMATION

****

Commonwealth of Pennsylvania Worker and Community Right-to-Know Act: This Material Safety Data Sheet (MSDS) complies with the current disclosure requirements for MSDS's required by the Pennsylvania act. Refer to Section II for chemical ingredient information.

SARA Title III Information: None of the components of this product are listed under SARA Title III, Section 313.

Proposition 65 Information:
Based on data we have available to us, this product does not contain any Proposition 65 regulated materials.

****

SECTION XI - SHIPPING INFORMATION

****

D.O.T. Proper Shipping Name: None

D.O.T. Hazard Class: Not regulated.

The specific chemical identities of any trade secret ingredients that may be contained in this product are not disclosed herein. To the best of our knowledge the information contained herein is correct. Portions of the information presented and conclusions drawn may be derived from sources other than direct test data on the product itself. All chemicals may present unknow health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Final determination of the suitability of the chemical is the sole responsibility of the user. Users of any chemical should satisfy themselves that the conditions and methods of use assure that the chemical is used safely
O REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF
ERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO THE INFORMATION CONTAINED HEREIN OR THE CHEMICAL TO WHICH THE INFORMATION REFERS.

MORTON THIOKOL, INC.

Dynachem Corporation
2631 Michelle Drive, Tustin, CA 92680
(714) 730-4200
MATERIAL SAFETY DATA SHEET

ate Prepared: 11/13/84
Supercedes: 7/82

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: LAMINAR® TA Dry Film Photopolymer

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO.	PERCENT	TLV
Reactive acrylic monomers		30	Not established

SECTION III - PHYSICAL DATA

PROPERTY	(REFERENCE)	MEASUREMENT
Boiling Point (°F)		N/A
Vapor Pressure (mm Hg.)		N/A
r Density	(Air=1)	N/A
Solubility in Water		Negligible
Specific Gravity	(H_2O=1)	N/A
Percent Volatiles (Vol. %)		N/A
Evaporation Rate	(=1)	N/A
Appearance and Odor	Solid film, blue color, no odor.	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Closed Cup): N/A

Lower Explosive Limit: N/A
Upper Explosive Limit: N/A

Extinguishing Media: CO_2, dry chemical, foam, water spray.

Special Firefighting Procedures: Firefighters who may be exposed to smoke, fumes or vapors should wear self-contained breathing apparatus with a full facemask. Wear ficient protective clothing/equipment to prevent skin/eye contact with the olymerized photoresist and/or airborne contaminants.

PRODUCT IDENTIFICATION: LAMINAR® TA Dry Film Photopolymer

****

SECTION IV - FIRE AND EXPLOSION HAZARD DATA (CONTINUED)

****

Unusual Fire and Explosion Hazards: Burning film can release noxious fumes which may contain irritating particulates of acrylic monomers. Heat from fire may cause some unpolymerized photoresist material to escape from between the cover sheet and release sheet.

****

SECTION V - HEALTH HAZARD DATA

****

Threshold Limit Value: Not established

Effects of Overexposure: Eye contact and prolonged or repeated skin contact with unpolymerized resist can cause irritation. Low hazard potential in normal handling with cover sheets in place; handling of unpolymerized resist not normally encountered. Vapors may be emitted during lamination which may cause irritation of skin, eyes and respiratory tract. Some individuals may eventually become sensitized as a result of repeated contact with the unpolymerized photoresist or its vapor condensates.

First Aid: EYES: immediately flush with plenty of water for at least 15 minutes. Call a physician. SKIN: wash thoroughly with soap and water. If persistent or severe irritation occurs, consult a physician. INHALATION: remove to fresh air; if breathing is difficult, call a physician. INGESTION: induce vomiting and call a physician.

Never give anything by mouth to an unconscious person.

****

SECTION VI - REACTIVITY DATA

****

Stability: Product is stable. Avoid exposure to ultraviolet light sources (see below under "Hazardous Polymerization").

Incompatability: N/A

Hazardous Decomposition Products: Not established. Products of thermal decomposition and/or fire conditions would probably include: CO, CO_2, acrylic monomers.

Hazardous Polymerization: Will not occur. Exposure to ultraviolet light (sunlight, white light, etc.) will eventually cause a non-hazardous polymerization of the film.

PRODUCT IDENTIFICATION: LAMINAR® TA Dry Film Photopolymer

****

SECTION VII - SPILL OR LEAK PROCEDURES

****

Steps To Be Taken in Case Material Is Released Or Spilled: Physical nature of this product makes spills virtually impossible under normal conditions.

Waste Disposal Method: Approved chemical waste landfill. Check for compliance with federal, state and local regulations.

****

SECTION VIII - SPECIAL PROTECTION INFORMATION

****

Respiratory Protection: Not normally required.

Ventilation: Local exhaust ventilation to remove any vapors/fumes that may be emitted during lamination.

Protective Gloves: Close-fitting (surgical) rubber gloves - optional.

Eye Protection: Safety glasses or goggles - optional.

Other Protective Equipment: During cleaning, developing, stripping, etching and plating operations follow safety precautions pertaining to the particular solution(s) being used.

****

SECTION IX - SPECIAL PRECAUTIONS OR ADDITIONAL INFORMATION

****

Wash thoroughly after handling. Avoid contact with the unpolymerized resist.

Provide local exhaust ventilation during lamination operations. Avoid breathing or contacting any vapors/fumes that may be emitted during lamination. Avoid contact with photoresist vapor condensate.

Do not handle or re-use waste cover sheet, release sheet or outer polyethylene wrapping material. These may retain small amounts of unpolymerized photoresist.

Protect dry film from light and heat. Store below 70°F (21°C) and 50% humidity.

Do not take internally.

FOR INDUSTRIAL USE ONLY.

The information contained herein is derived from the best available sources and is believed to be accurate. However, no guarantee is expressed or implied regarding the accuracy or completeness of the information or the use of this product. The specific chemical identities of any trade secret ingredients that may be contained in this product are not disclosed herein.

MORTON THIOKOL, INC.

Dynachem Corporation
2631 Michelle Drive, Tustin, CA 92680
(714) 730-4200

MATERIAL SAFETY DATA SHEET

Date Prepared: 2/14/85
Supercedes: N/A

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: LAMINAR® DM Dry Film Solder Mask

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO.	PERCENT	TLV
Acrylic monomers		20-30	Not established

SECTION III - PHYSICAL DATA

PROPERTY	(REFERENCE)	MEASUREMENT
Boiling Point (°F)		N/A
Vapor Pressure (mm Hg)		N/A
Vapor Density	(Air=1)	N/A
Solubility in Water		Negligible
Specific Gravity	(H_2O=1)	N/A
Percent Volatiles (Vol. %)		N/A
Evaporation Rate	(=1)	N/A
Appearance and Odor	Solid film, green color, no odor.	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Closed Cup): N/A

Lower Explosive Limit: N/A
Upper Explosive Limit: N/A

Extinguishing Media: CO_2, dry chemical, foam, water spray.

Special Firefighting Procedures: Firefighters who may be exposed to smoke, fumes or vapors should wear self-contained breathing apparatus with a full facemask. Wear sufficient protective clothing/equipment to prevent skin/eye contact with the polymerized photoresist and/or airborne contaminants.

PRODUCT IDENTIFICATION: LAMINAR® DM Dry Film Solder Mask

****

SECTION IV - FIRE AND EXPLOSION HAZARD DATA (CONTINUED)

****

Unusual Fire and Explosion Hazards: Burning film can release noxious fumes which may contain hydrogen fluoride and irritating particulates of acrylic monomers. Heat from fire may cause some unpolymerized photoresist material to escape from between the cover sheet and release sheet.

****

SECTION V - HEALTH HAZARD DATA

****

Threshold Limit Value: Not established.

Effects of Overexposure: Eye contact and prolonged or repeated skin contact with unpolymerized resist can cause irritation. Some degree of skin absorption may occur. Low hazard potential in normal handling with cover sheets in place; handling of unpolymerized resist not normally encountered. Vapors may be emitted during lamination which may cause irritation of skin, eyes and respiratory tract. Some individuals may eventually become sensitized as a result of repeated contact with the unpolymerized photoresist or its vapor condensates. Toxic effects of oral ingestion are undetermined; do not take internally.

First Aid: EYES: immediately flush with plenty of water for at least 15 minutes. Call a physician. SKIN: wash thoroughly with soap and water. If persistent or severe irritation occurs, consult a physician. INHALATION: remove to fresh air; if breathing is difficult, call a physician. INGESTION: induce vomiting and call a physician.

Never give anything by mouth to an unconscious person.

****

SECTION VI - REACTIVITY DATA

****

Stability: Product is stable. Avoid exposure to ultraviolet light sources (see below under "Hazardous Polymerization").

Incompatability: Avoid contact with strong oxidizers (peroxides, nitrates, permanganates, etc.).

Hazardous Decomposition Products: Not established. Products of thermal decomposition and/or fire conditions would probably include: CO, CO_2, HF, acrylic monomers.

Hazardous Polymerization: Will not occur. Exposure to ultraviolet light (sunlight, white light, etc.) will eventually cause a non-hazardous polymerization of the film.

PRODUCT IDENTIFICATION: LAMINAR® DM Dry Film Solder Mask

****

SECTION VII - SPILL OR LEAK PROCEDURES

****

Steps To Be Taken in Case Material Is Released Or Spilled: Physical nature of this product makes spills virtually impossible under normal conditions.

Waste Disposal Method: Approved chemical waste landfill. Check for compliance with federal, state and local regulations.

****

SECTION VIII - SPECIAL PROTECTION INFORMATION

****

Respiratory Protection: Not normally required.

Ventilation: Local exhaust ventilation to remove any vapors/fumes that may be emitted during lamination.

Protective Gloves: Light weight impervious gloves - optional.

Eye Protection: Safety glasses or goggles - optional.

Other Protective Equipment: During cleaning, developing, stripping, etching and plating operations follow safety precautions pertaining to the particular solution(s) being used.

****

SECTION IX - SPECIAL PRECAUTIONS OR ADDITIONAL INFORMATION

****

Wash thoroughly after handling. Avoid contact with the unpolymerized resist.

Provide local exhaust ventilation during lamination operations. Avoid breathing or contacting any vapors/fumes that may be emitted during lamination. Avoid contact with photoresist vapor condensate.

Do not handle or re-use waste cover sheet, release sheet or outer polyethylene wrapping material. These may retain small amounts of unpolymerized photoresist.

Protect dry film from light and heat. Store below 70°F (21°C) and 50% humidity.

Do not take internally.

FOR INDUSTRIAL USE ONLY.

The information contained herein is derived from the best available sources and is believed to be accurate. However, no guarantee is expressed or implied regarding the accuracy or completeness of the information or the use of this product. The specific chemical identities of any trade secret ingredients that may be contained in this product are not disclosed herein.

APPENDIX L

CWSTS WASTE SUBMITTAL

LENKOTE 40 SYSTEM

A THICK, TOUGH COATING RESISTANT TO HIGHLY OXIDIZING ACIDS

PHYSICAL AND CHEMICAL CHARACTERISTICS

LENKOTE 40 (A Vinyl Ester Coating)

Type of Surface	Metal
Sandblasting	Required
Film Thickness	30 – 40 Mils
Temperature Range:	
Immersion	Up to 212 F
Dry Intermittent	Up to 400 F
Thermal Shock	-70 F +200 F
Weathering	Good
Flexibility	Fair
Impact	Good
Abrasion	Good
Adhesion	Excellent

Meets F.D.A. – Food and Drug Administration Requirements.

Excellent Resistance to organic acids, inorganic acids, oxidizing agents and salts.

Good resistance to alcohols, naptha, carbon, disulfide, gasoline, and heptane at room temperature.

SUGGESTED USES

Storage vessels, pumps, and concrete basis subject to high temperatures and sewer exposures.

Spent acid handling

Processing and filter tanks with a chlorane environment

Blowers handling severe fumes

Protective Coating Applicators
Our Plant or Job Site

CHEMICAL RESISTANCE INDICATION CHART

	PERCENT	TEMPERATURE
Acetic Acid	20	100
Acetic Acid	20	150/NR
Acetic Acid (Glacial)	100	100/NR
Acetone	100	NR
Ammonia Sulfide	all	150
Ammonium Hydroxide	all	100
Ammonium Thiosulfate	5	100
Aqua Ammonia	all	100/NR
Caustic [illegible]	10	100
Caustic [illegible]	52	100
Chlorane Dry [illegible]	all	150
Chlorane Wet [illegible]	all	150
Carbon Dioxide	all	150
Chromic Acid	20	150
Chromic Acid	30	NR
Diprophylene Glycol	all	150
Ethyl Alcohol	all	100
Ethylamine	70	NR
Ethylene Glycol	all	250
Ferric Ammonium	all	180
Formaldehyde	37	150
Formic Acid	25	NR
Gasoline	all	100
Glycerin	all	150
Hexane Sulfuric Acid	all	150
Hydrochloric Acid	5	155
Hydrochloric Acid	10	100
Hydrochloric Acid	20	150
Hydrochloric Acid	37	100
Hydrochloric Acid	30	100
Hydrochloric Acid	30	150/NR

	PERCENT	TEMPERATURE
Hydrofluoric Acid	5	100
Hydrofluoric Acid	10	100
Hydrofluoric Acid	20	100
Hydrofluosilicic Acid	10	100
Hydrofluosilicic Acid	20	100
Hydrofluosilicic Acid	30	100
Hydroylamine	30	150
Invert Sugar PH 1.5-3.2	–	195
Maleic Anhydride	[illegible]	[illegible]
Methyl Chloroformate	[illegible]	NR
Methyl Ethyl Ketone	[illegible]	100
Naptha	all	100
Naturalization Slurry	all	150
Nickel Brightner	all	100
Nitric Acid	10	100
Nitric Acid	20	100
Nitric Acid	20	150/NR
Oleum (Fuming Sulfuric Acid)	all	NR
Oxalic Acid	10	150
Palmolive	all	150
Perchlorethylene	all	100
Phenol	5	100
Phosphoric Acid	15	170
Phosphoric Acid	54	150
Phosphoric Acid	76	100
Phosphoric Acid	50	100
Phosphoric Sugar Acid	10	150
Phosphoric Sugar Acid	10	200
Phosphoric 20% Kerosene	[illegible]	150

LENKOTE

Responsible Service to Industry Since 1939

Industrial Coatings Corporation
3227 South Shields Avenue Chicago, Illinois 60616
312 842 4828

DEC 26 '90 09:55 P.3

LENKOTE 40 SYSTEM

CHEMICAL RESISTANCE INDICATION CHART

	PERCENT	TEMPERATURE
[illegible]		
Nitrogen	4%	
Potassium	10%	100
Water	76%	
Phosphorus	22%	
Nitrogen	7%	
Potassium	5%	
Water	66%	100
Pickling Acid (Spent Sulfuric)	all	100
Poly Coprolactone	all	100/NR
Potash Slurry	all	250
Potassium Chloride	25	150
*Potassium Chloride	50	150

	PERCENT	TEMPERATURE
Sulfide Liquor Waste	50	150
Sulfite Liquor 41.5 Solids	PH 6.0-7.5	200
Sulfur Monochloride	all	100/NR
Sulfuric Acid	3	100
Sulfuric Acid	25	100
Sulfuric Acid	25	80
Sulfuric Acid	50	85
Sulfuric Acid	75	100
Sulfurous Acid	PH 1	140
Sulfuryl Chloride	5	100
Toluol	all	100
Trichloroethane	all	100

Potassium Permanganate	5	180
Propylene Chloroyydrin	all	120
Propylene Dichloride wet	all	120/NR
Propylene Glycol	all	150
Protein Waste Solution	PH 3	100
Rosin Size Dark	all	210
Rosin Size Pale	all	210

Tricresyl Phosphate	all	150
Urea 40%		
Ferric Chloride 12%		
Ammonium Chloride 10%	–	150
Water 38%		

Sodium Acetate	10	150
Sodium Acetate	50	150
Sodium Acetate Slurry	all	150
Sodium Bisulfate	30	100
Sodium Carbonate 36%		
Sodium Bicarbonate 36%		200
Water 28%		

Vinegar 200 grains		100
Vinegar 200 grains		150/NR
Vinegar 300 grains		100
Vinegar 400 grains		100
Vinegar 400 grains		150/NR
Waste Solution: Water 600 PPM, Acetone 400 PPM, Sodium 4000 PPM, Chloride 20,000 PPM	–	100
Waste Sulfide Liquor	all	150
White Liquor	all	100
White Liquor	all	180/NR
Xylene	all	100

Sodium Hydroxide	5	150/NR
Sodium Hydroxide	25	150/NR
Sodium Hydroxide	50	150/NR
Sodium Hydroxide	50	100
Sulfamic	5	100
Sour Crude Oil	all	180

LENKOTE 40 is a high build vinyl ester providing protection against many fast penetrating acids at elevated temperatures.

LENKOTE 40 resistance data was obtained under immersion conditions. We believe this data indicates a good basis from which to select a protective coating. Due, however, to the complexities of corrosion service such as chemical concentration, temperature range, combination of chemical and operational procedures coupons are available upon request for actual operating tests and evaluations.

SURFACE PREPARATION:

1. Weld splatter must be removed, all sharp edges broken and skip welds should be seal welded where possible.
2. Contaminated and old equipment would be prebaked or solvent cleaned before sandblasting.
3. Sandblast to conform to the Steel Structure Painting Council Specification SS P-6P5-63 or NACE #1. The anchor pattern will be approximately 3 – 4 mils deep.
4. The grit is usually 30 mesh sharp silica. Other materials are sometimes used depending on the severity of the scale, residue or old coating to be removed.
5. Care is taken to avoid contamination due to finger prints, detrimental materials on workmens clothing and atmosphere contamination.

COATING APPLICATION:

1. The first coat should be applied the same day as sandblasting depending on atmospheric conditions. This coat applied in a multi-pass criss-cross pattern should produce an approximately 20 mils thickness.
2. The first coat should have an approximate three (3) hour drying time at 70°F or better until hardening occurs.
3. The preceding coats are applied in like manner, however after the first day a 5 – 10% thinner additive is recommended.

CURING:

1. Ten days at 70°F; Seven days at 90°F or force cured.
2. Forced curing:

Metal Temperature	Time
130°F	18 hrs.
150°F	6 hrs.
180°F	2-1/2 hrs.
200°F	1-3/4 hrs.

LENKOTE
Responsible Service To Industry Since 1949
Industrial Coatings Corporation
3227 South Shields Avenue Chicago Illinois 60616
312 842 4828

APPENDIX O

HOLIDAY TEST WITNESS DOCUMENT

C.W.S. Project September 26, 1990

Upon final successful testing and verification by the Corrpro Companies, Inc. Representative, that the C.W.S. tank liner in free from any "holidays" and has met the minimum mil thickness requirements and upon receipt of the 1-year tank liner warranty issued to AT&T Bell Laboratories, I accept the tank liner on behalf of AT&T Bell Laboratories.

September 26, 1990

Frank J. Girdwain

Frank J. Girdwain

I have field tested, verified and approved acceptance of the tank liner to be without any "holidays" and has met the minimum mil thickness requirements

September 26, 1990

Eric Basha

Corrpro Companies, Inc. Representative

Field coating work performed by and testing witnessed and accepted by the authorized representative of Industrial Coatings Corporation.

September 26, 1990

Industrial Coatings Corp. Representative

Witnessed and accepted by the authorized representative of Amazing Construction Company, Inc.

September 26, 1990

Amazing Construction Company, Inc. Representative

Witnessed by the authorized representative of Roy F. Weston, Inc.

September 26, 1990

Steven R. Bosko

Roy F. Weston, Inc., Representative

APPENDIX P

HOLIDAY AND MIL THICKNESS TEST RESULTS

September 28, 1990

AT&T Bell Laboratories
2000 N. Naperville Road
Naperville, Illinois 60566-7033

Attention: Mr. Frank J. Girdwain, P.E.
Senior Engineer
Facilities Engineering

Reference: 6000 Gallon Storage Tank

Dear Frank:

The following documentation is provided regarding our inspection of the internal coating of the new 6,000 gallon storage tank. Corrpro Companies, Inc. was contracted by AT&T Bell Laboratories to conduct "holiday" testing and non-destructive thickness inspection of the interior coating applied to the above referenced tank. The results of the testing conducted are included with this letter.

August 24, 1990

Thickness measurements were recorded using a Mikrotest SM5 Type IV thickness gauge. The measurements recorded indicated insufficient thickness at the following locations

a. Bottom two nozzles on the north bulkhead of the north chamber.
b. North bulkhead of the south chamber.
c. South bulkhead of the south chamber.
d. Bottom of stiffner on the south bulkhead of the south chamber.
e. Bottom two nozzles on the south bulkhead of the south chamber.

Holiday testing was not conducted due to equipment malfunction.

corrpro

Corrpro Companies, Inc.

Corporate Headquarters
P.O. Box 1179
Medina, OH 44258
(216) 723-5082
Fax (216) 722-7654
Telex 887227

Atlanta
P.O. Drawer 35089
Decatur, GA 30035-35089
(404) 593-9593

Bakersfield
6929 Yuma Way
Bakersfield, CA 93308
(805) 589-1048

Chicago
931 West Albion
Schaumburg, IL 60193
(708) 980-8770

Denver
7388 S. Revere Parkway
Suite 702
Englewood, CO 80112
(303) 799-6631

Houston
P.O. Box 100
Spring, TX 77383
(713) 350-0205

Los Angeles
1445 Donlon Street, Suite 10
Ventura, CA 93003
(805) 650-1258

New Orleans
P.O. Box 2029
Kenner, LA 70063
(504) 467-7766

New York
197 Route 18, Suite 3000
East Brunswick, NJ 08816
(201) 214-2651

Philadelphia
129 Brandywine Parkway
West Chester, PA 19380
(215) 344-7002

San Francisco
31909 Hayman Street
Hayward, CA 94544
(415) 471-2233

September 4, 1990

The holiday testing was conducted during this site visit. Some deficiencies were found and noted on the sketch provided in Exhibit B. The coating thickness of all manways and nozzles on the top of the tank were recorded. Some areas of insufficient coating thickness were found and recorded. The coating thicknesses are recorded in Exhibit B, Sheet 2 of 2.

September 11, 1990

On this date, the coating deficiencies noted during the two previous site visits were to have been corrected. These areas were retested, however, areas immediately adjacent those recoated were found defective. Thickness measurements were again recorded inside the nozzles on top of the tank. All were found acceptable. Exhibit C Sheets 1 and 2 provide the data obtained during this site visit.

September 24, 1990

This site visit was conducted in conjunction with Industrial Coatings to facilitate the coating repair. For safety reasons, no access inside the tank was possible after recoating operations. The testing was delayed until the following day.

September 25, 1990

Thickness measurements were conducted on the bulkheads of the south chamber and bottom nozzles on the north and south bulkheads. Thickness measurements were found acceptable. See revision 1 of Exhibit 1, Sheets 2, 5, and 6.

Holiday testing was conducted, unfortunately, small areas were found on the north and south bulkheads. These areas were marked and are contained in Exhibit D. The coaters were notified and coating repair scheduled for the following day.

September 26, 1990

Holiday testing was conducted on the areas where the previous day (9-25-90) showed coating flaws. No flaws were detected on the south tank head. Two flaws were found on the north tank head and were immediately recoated by the contractor. Flaws were reinspected and found to be acceptable.

Based on the series of testing conducted, the coating was found to be acceptable.

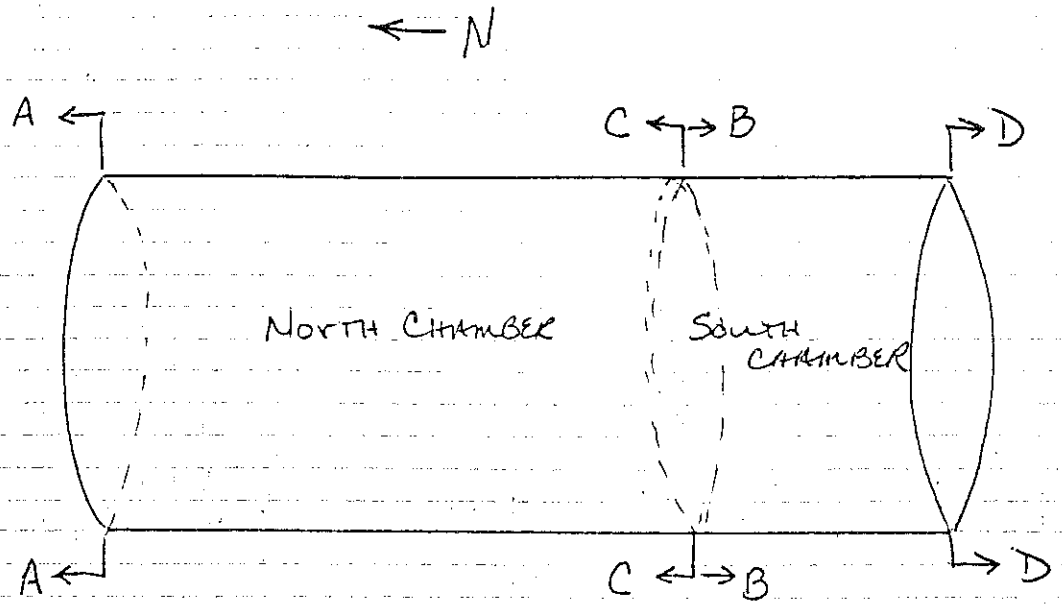
Should you have any questions, please do not hesitate to give us a call.

Sincerely,
CORRPRO COMPANIES, INC.
Chicago Office

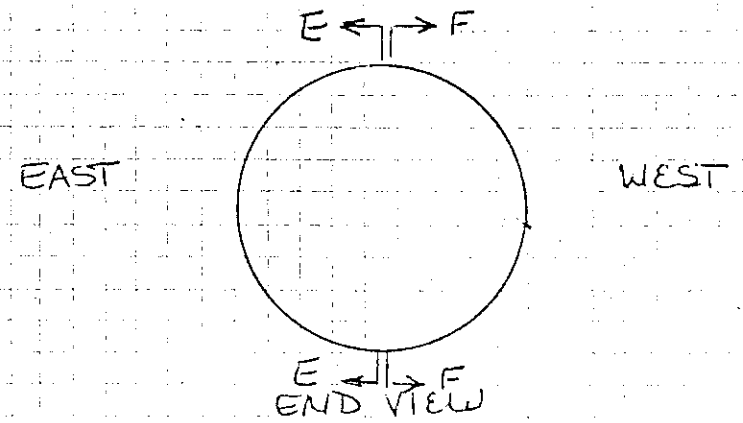
Jane T. Pajak
Corrosion Specialist #3662

jtp743.doc

corrpro Companies, Inc.	CLIENT: AT&T	SHEET NO. 1 OF 7
	PROJECT: 6K STORAGE TANK	DATE: ~~[illegible]~~ 8/24/90
	SUBJECT: DFT INTERIOR COATING	BY: JAP/ERB

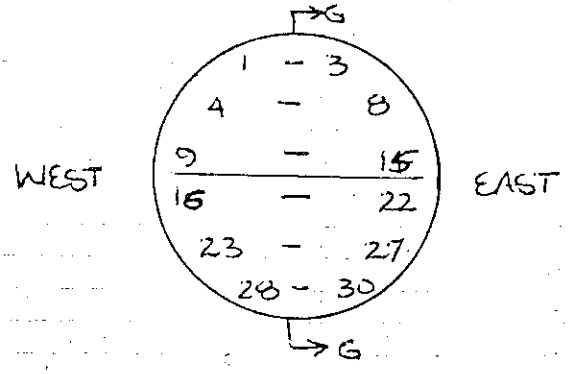


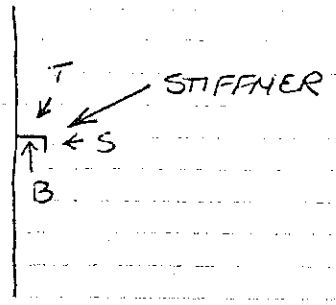
SECTION A-A NORTH INSIDE FACE NORTH CHAMBER
SECTION B-B SOUTH INSIDE FACE NORTH CHAMBER
SECTION C-C NORTH INSIDE FACE SOUTH CHAMBER
SECTION D-D SOUTH INSIDE FACE SOUTH CHAMBER



corrpro Companies, Inc.	CLIENT: AT&T	SHEET NO. 2 OF 7
	PROJECT: 6K STORAGE TANK	DATE 8/24/90
	SUBJECT: DFT INTERIOR COATING	BY JAP/ERB
		⚠ Revised 9/25/90

SECTION A-A





SECTION G-G

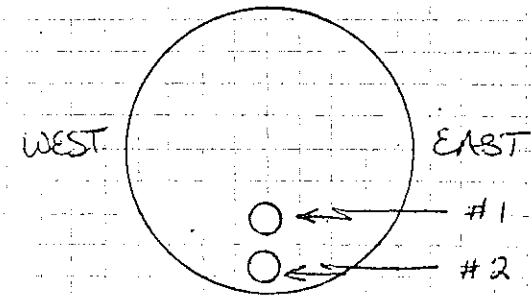
NORTH INSIDE FACE NORTH CHAMBER

LOCATION	MIL THICKNESS	
1	31	
2	42	
3	35	
4	42	
5	31	
6	32	
7	35	
8	37	
9	70	HIGH
10	40	
11	45	
12	40	
13	40	
14	45	
15	45	
16	50	
17	33	
18	35	
19	38	
20	33	
21	33	
22	33	
23	35	
24	38	
25	32	
26	30	LOW
27	40	
28	48	
29	50	
30	47	

STIFFNER

	TOP	SIDE	BOTTOM
WEST	60	34	35
2	52	30	34
3	40	34	21
4	44	40	27
5	40	45	22
6	55	39	23
EAST	55	40	24

HIGH = 60 MILS
LOW = 21 MILS



	T	B	W	E
#1	22	23	15	14
#2	25	18	24	36

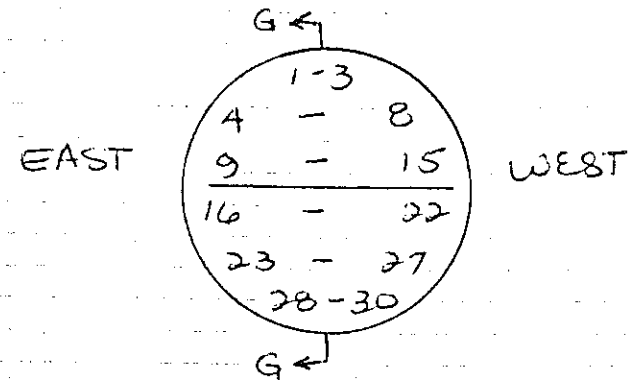
⚠

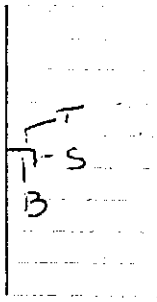
#1	32	40	30	30
#2	30	40	40	

CLIENT	SHEET NO.
AT&T	3 OF 7
PROJECT: 6K STORAGE TANK	DATE: 8/24/90
SUBJECT: DFT INTERIOR COATING	BY: JJP/ERB

corrpro Companies, Inc.

SECTION B-B





SECTION G-G

SOUTH INSIDE FACE NORTH CHAMBER

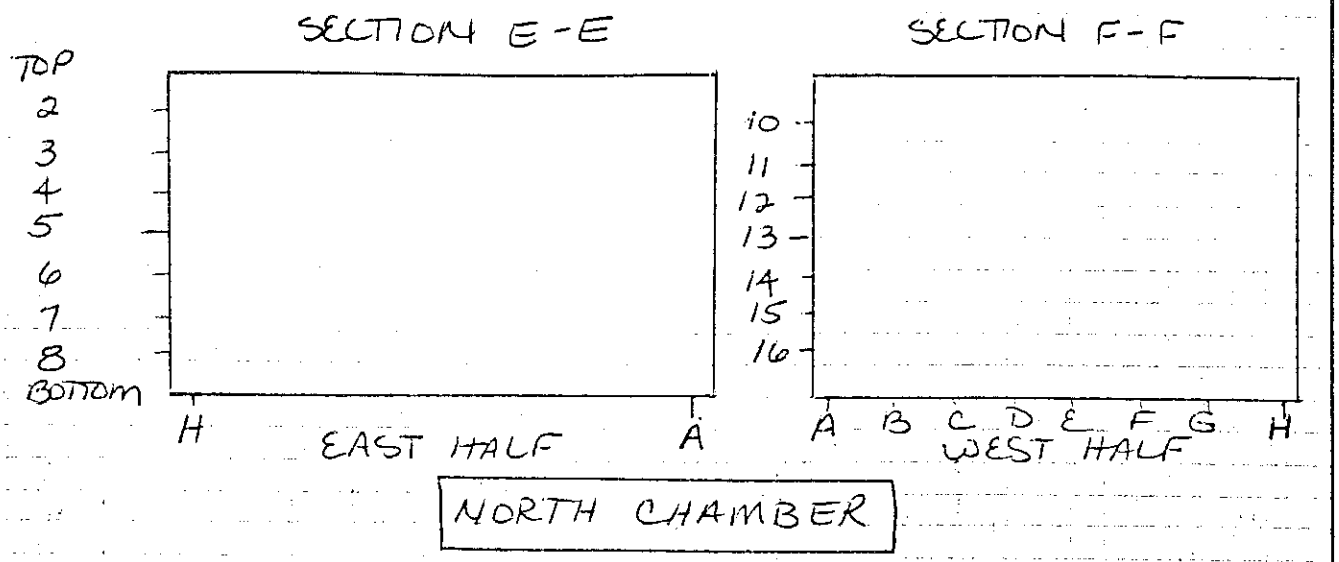
LOCATION	MIL THICKNESS	
1	40	
2	35	
3	50	
4	40	
5	38	
6	40	
7	40	
8	40	
9	47	
10	42	
11	35	
12	45	
13	42	
14	43	
15	55	HIGH
16	40	
17	35	
18	38	
19	47	
20	47	
21	45	
22	50	
23	38	
24	30	
25	35	
26	30	
27	45	
28	42	
29	29	LOW
30	38	

STIFFNER

	TOP	SIDE	BOTTOM
WEST	45	60	25
2	55	48	26
3	40	40	27
4	45	40	25
5	33	40	23
6	38	40	24
EAST	45	35	30

HIGH = 60 MILS
LOW = 24 MILS

corrpro Companies, Inc.	CLIENT: AT&T	SHEET NO. 4 OF 7
	PROJECT: 6K STORAGE TANK	DATE: 8/24/90
	SUBJECT: DFT INTERIOR COATING	BY: JTP/ERB



NORTH CHAMBER

	A	B	C	D	E	F	G	H
TOP	38	42	45	42	LID	35	35	40
2	40	40	40	45	30	30	27	40
3	36	42	47	40	33	38	30	30
4	38	38	42	40	40	37	23	28
5	40	40	50	54	45	50	43	35
6	45	50	65	55	55	55	47	47
7	60	50	57	55	55	60	47	60
8	63	60	70	60	60	65	55	60
BOTTOM	70	65	45	50	45	38	60	75
10	38	42	40	34	34	34	35	45
11	45	45	42	45	42	38	36	34
12	40	40	45	50	50	38	32	36
13	50	45	50	50	52	40	45	60
14	50	50	60	60	70	50	57	55
15	55	50	65	65	57	50	55	60
16	60	65	70	50	52	57	60	70

Column H = NORTH END

Column A = SOUTH END

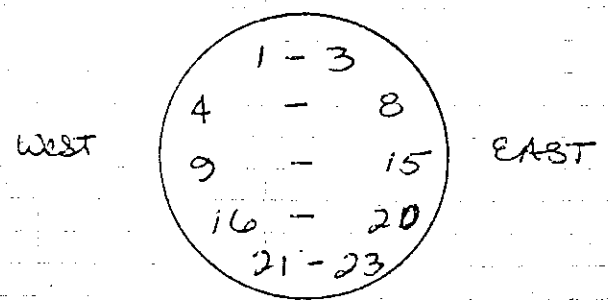
HIGH = 70 mils.

LOW = 23 mils

corrpro Companies, Inc.	CLIENT: AT&T	SHEET NO. 5 OF 7
	PROJECT: 6K STORAGE TANK	DATE 8/24/90
	SUBJECT: DFT INTERIOR COATING	BY JAP/ERB
		Revised 9/25/90

SECTION C-C

NORTH INSIDE FACE SOUTH CHAMBER



LOCATION	MIL THICKNESS	
1	38	
2	40	HIGH
3	40	
4	40	
5	40	
6	36	
7	32	
8	40	
9	40	
10	38	
11	38	
12	38	
13	28	
14	22	LOW
15	36	
16	40	
17	34	
18	26	
19	25	
20	32	
21	38	
22	25	
23	24	

>40

>30

>40

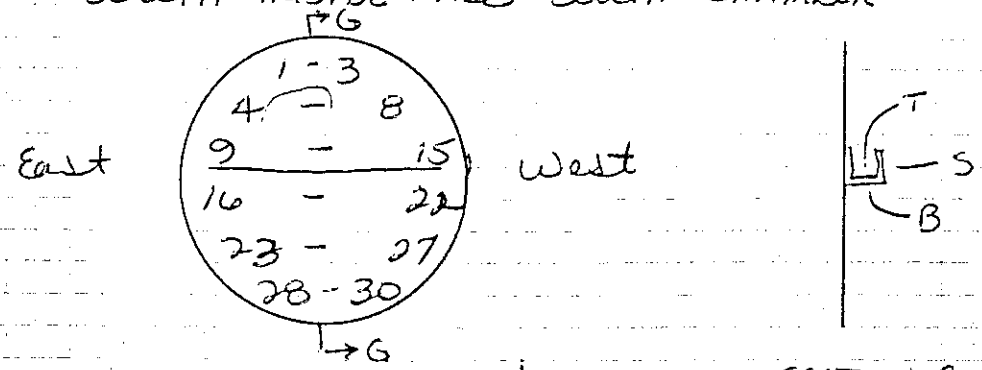
CLIENT	SHEET NO.
AT&T	6 OF 7
PROJECT: 6K STORAGE TANK	DATE: 8/24/90
SUBJECT: DFT INTERIOR COATING	BY: JTP/ERB

corrpro companies, Inc.

Revised 9/25/90

SECTION D-D

SOUTH INSIDE FACE SOUTH CHAMBER



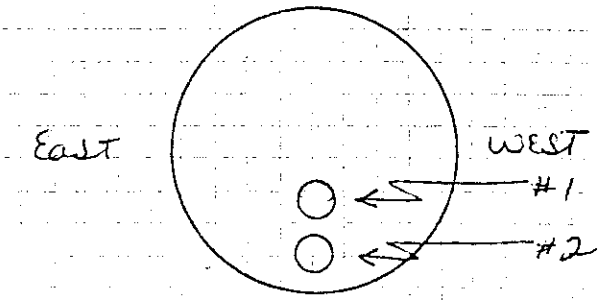
LOCATION	MIL THICKNESS	
1	33	
2	29	
3	35	
4	30	
5	27	32
6	24	
7	30	>40
8	30	
9	38	
10	38	
11	30	
12	30	
13	26	35
14	28	35
15	32	
16	34	
17	28	35
18	21	LOW
19	22	
20	28	
21	23	>40
22	22	
23	29	
24	23	35
25	23	
26	23	35
27	30	
28	40	HIGH
29	32	
30	37	

SECTION G-G

	TOP	SIDE	BOTTOM
EAST	42	26	22
2	36	17	19
3	30	14	18
4	40	18	17
5	40	24	18
6	42	22	15
WEST	40	30	18

1 30 30

HIGH = 42
LOW = 14



NOZZLE	TOP	BOT	EAST	WEST
#1	23	14	20	<8
#2	<8	15	12	34
9/11/90	20	40	40	40

40 30

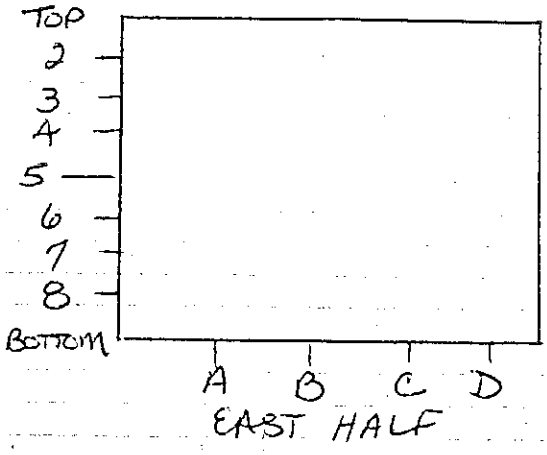
HIGH = 34

LOW = <8

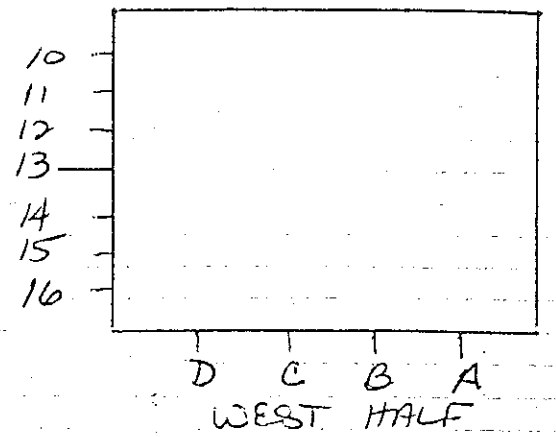
#1	35	35	40	40
#2	30	40	40	40

corrpro Companies, Inc.	CLIENT: AT&T	SHEET NO. 7 OF 7
	PROJECT: 6K STORAGE TANK	DATE: 8/24/90
	SUBJECT: DFT INTERIOR COATING	BY: JDP/ERB

SECTION E-E



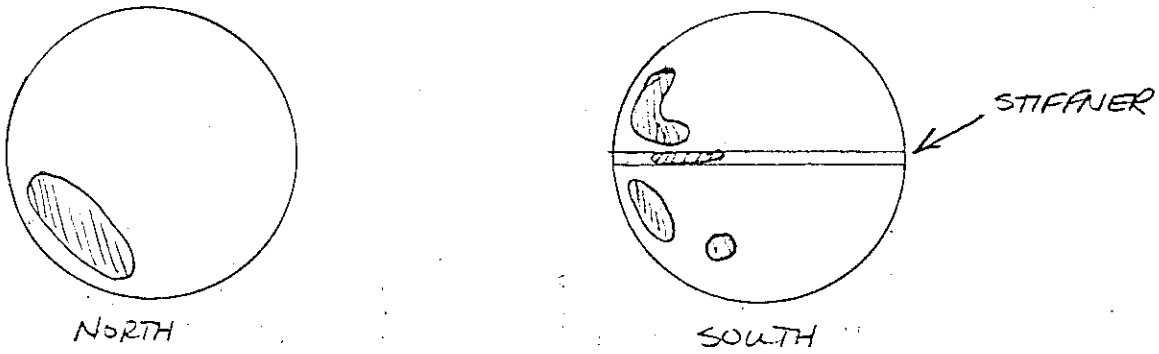
SECTION F-F



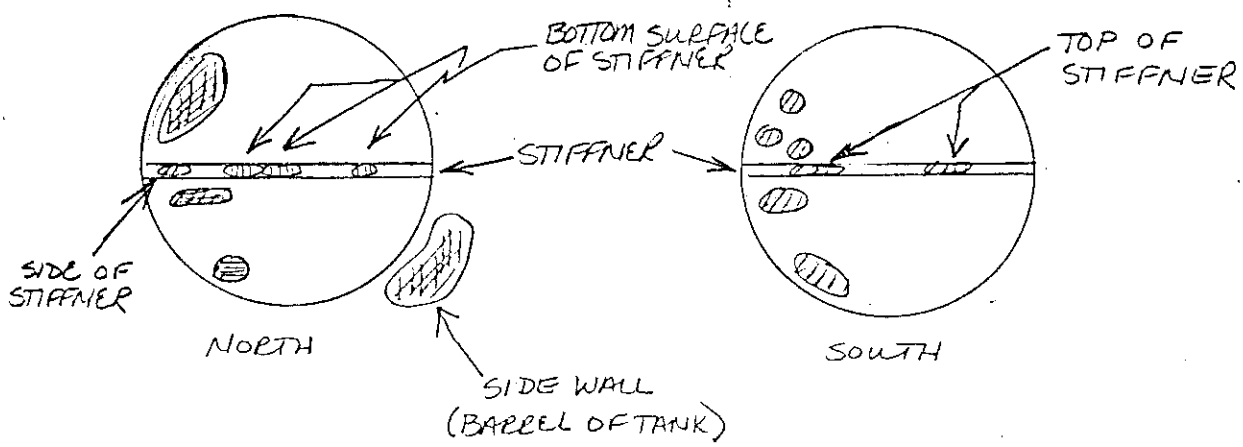
	A	B	C	D
TOP	36	28	LID	28
2	42	36	30	23
3	34	32	34	30
4	40	36	36	32
5	38	36	36	36
6	50	50	45	45
7	45	47	50	47
8	57	35	40	50
BOTTOM	40	28	40	45
10	37	30	30	23
11	45	40	40	29
12	38	33	34	36
13	38	34	30	30
14	40	46	40	40
15	52	54	53	53
16	50	52	40	47

CORRPRO Companies, Inc. PSG Corrosion Engineering, Inc.	CLIENT: AT&T	SHEET NO. 1 OF 2
	PROJECT: 6K GALLON TANK	DATE: 9/4/90
	SUBJECT: HOLIDAY TEST	BY: JTP/RS

SOUTH CHAMBER (2K)



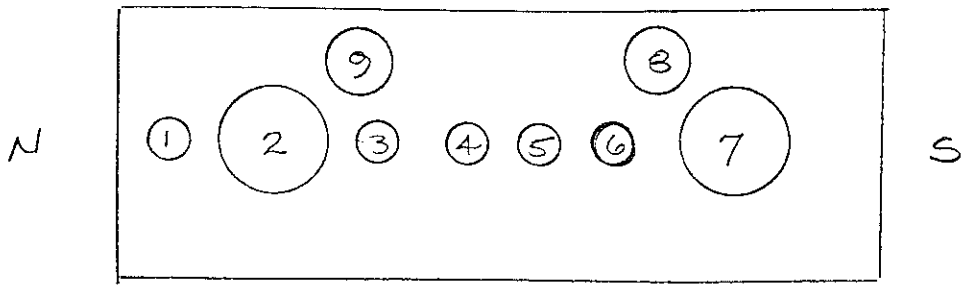
NORTH CHAMBER (4K)



A.) SURFACES SHOWING HOLIDAYS HAVE ROUGH SURFACE APPEARANCE

B.) = HOLIDAY

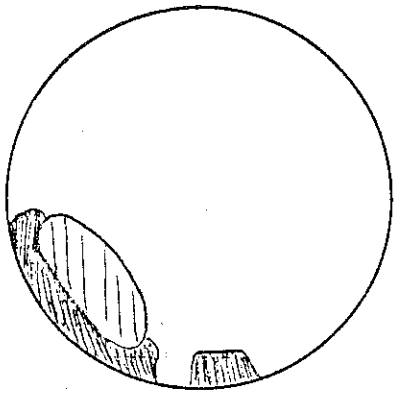
CORRPRO Companies, Inc. PSG Corrosion Engineering, Inc.	CLIENT: AT&T	SHEET NO. 2 OF 2
	PROJECT: 6K GALLON TANK	DATE: 9/4/90
	SUBJECT: HOLIDAY TEST	BY: JTP / RS



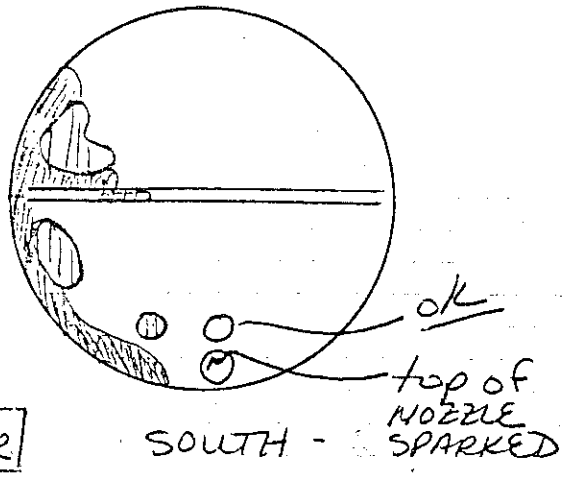
		mils					mils	
ok ✓1	S	32	SPARKED		7.	S	15	30
	W	33	BOTTOM SW EDGE			W	23	30
	N	32				N	22	30
	E	35				E	24	40
✓2	N	18	BOTTOM EDGE	30	8	S	20	40
	E	21	SPARKED PLUS	35		W	23	40
	W	27	ONE LOCATION	30		N	27	+ 40
	S	15	MARKED IN YELLOW	30		E	30	+ 40
ok ✓3.	S	47	BOTTOM NE EDGE		9	S	25	+40
	W	25	SPARKED			W	17	35
	N	30				N	30	
	E	50				E	32	
✓4	S		SPARKED BOTTOM					
	W	3"ø	6" DOWN ENTIRE		(Bottom Edge			
	N		I.D.		Full I.D.)			
	E							
✓5		3"ø	SAME AS #4		(SAME #4)			
ok ✓6	S	28	BOTTOM N & NW					
	W	30	EDGES SPARKED					
	N	40						
	E	25						

NOTE - 3"ø CANNOT BE ACCURATELY TESTED WITH THICKNESS GAUGE

corrpro Companies, Inc.	CLIENT: H&T	SHEET NO. 1 OF 2
	PROJECT: 6K Gallon	DATE: 9/11/90
	SUBJECT: HOLIDAY RETEST	BY: JTP



NORTH



SOUTH -

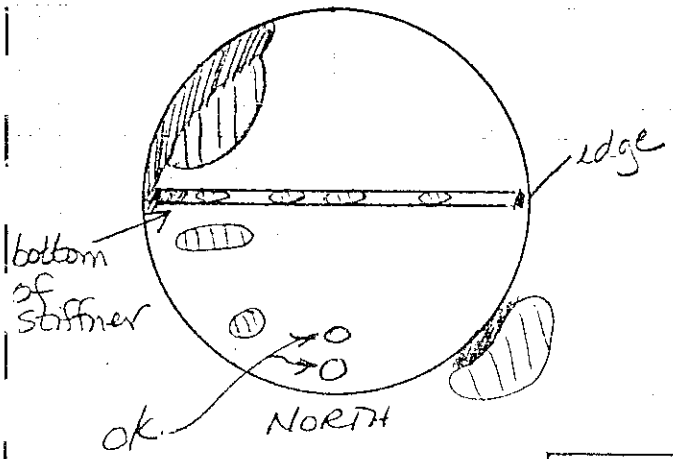
SOUTH CHAMBER

NOTES

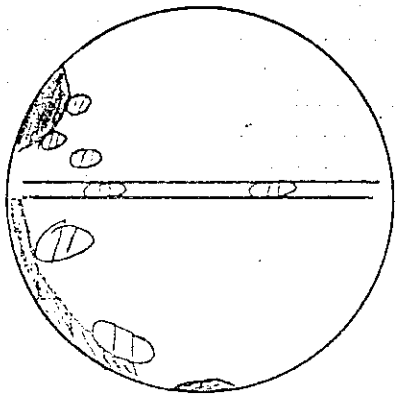
1. ROUGH SURFACES SHOWED HOLIDAYS
2. NOZZLES ON NORTH END - OK
3. BOTTOM NOZZLE SOUTH END
   TOP SPARKED NEAR CENTER

= 1ST TEST 9/4/90

= Retest 9/11/90



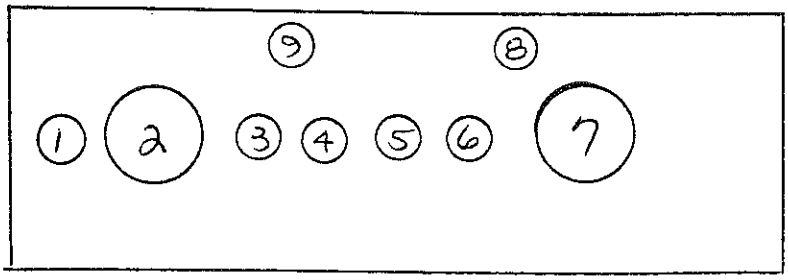
NORTH



SOUTH

NORTH CHAMBER

corrpro Companies, Inc.	CLIENT: AT&T	SHEET NO. 2 OF 2
	PROJECT: 60K Gallon Tank	DATE: 9/11/90
	SUBJECT: HOLIDAY TEST	BY: JTP



OPENING

1 – OK

2 – OK

LID – OUTSIDE EDGE OF VERTICAL RISER

3 – OK

4 – BOTTOM EDGE FULL ID

5 – BOTTOM EDGE FULL ID

6 – OK

7* – OK

8 – OK

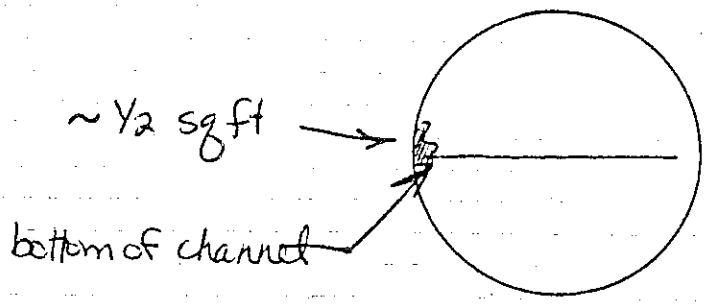
9 – OK

* LID FULL OF WATER – NO TEST

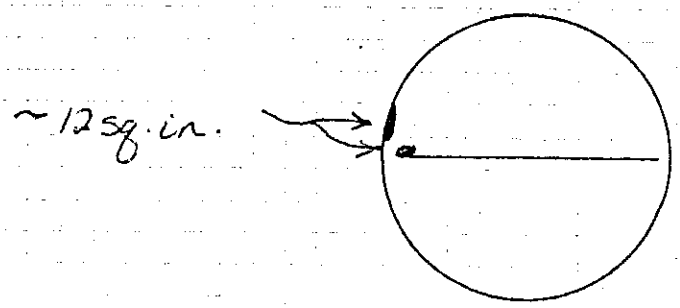
RETESTED THICKNESS ON #2, #7, #8, #9

	#2	#7	#8	#9
S	30	30	40	+40
W	35	30	40	35
N	30	30	+40	–
E	30	40	+40	–

corrpro Companies, Inc.	CLIENT: AT&T	SHEET NO. 1 OF 1
	PROJECT: 6K Storage Tank	DATE: 9/25/90
	SUBJECT: Holiday Test	BY: JTP



South Face
South Chamber



North Face
North Chamber

APPENDIX Q

SOIL COMPACTION AND CONCRETE TESTS

TSC
TESTING SERVICE CORPORATION

Subsurface Exploration
Geotechnical Engineering
Construction Materials Engineering & Testing
Environmental Engineering
Geosciences & Hydrogeologic Studies
Monitoring Wells

October 19, 1990

A T & T BELL LABORATORIES
2000 North Naperville Road, Room 9B-140
Naperville, Illinois 60566

Attention: Mr. Frank Girdwain
Mr. Herb Roman

RE: L - 28,280
Report No. 7
CONCENTRATED WASTE SYSTEM
RENOVATION PROJECT

Gentlemen:

Enclosed with this correspondence is a copy of a laboratory compaction curve which was prepared in connection with the referenced project.

The laboratory work consisted of determining the optimum moisture content and maximum dry unit weight for FA6 (limestone screenings) material in accordance with the ASTM D 1557 laboratory procedure.

The FA6 was found to have an optimum moisture content of 7.3 percent and a maximum dry unit weight of 132.8 pounds per cubic foot. A copy of the laboratory compaction curve is enclosed with this correspondence.

Please call if there are any questions.

Respectfully submitted,

TESTING SERVICE CORPORATION

Thomas Morris, P.E.
Vice President

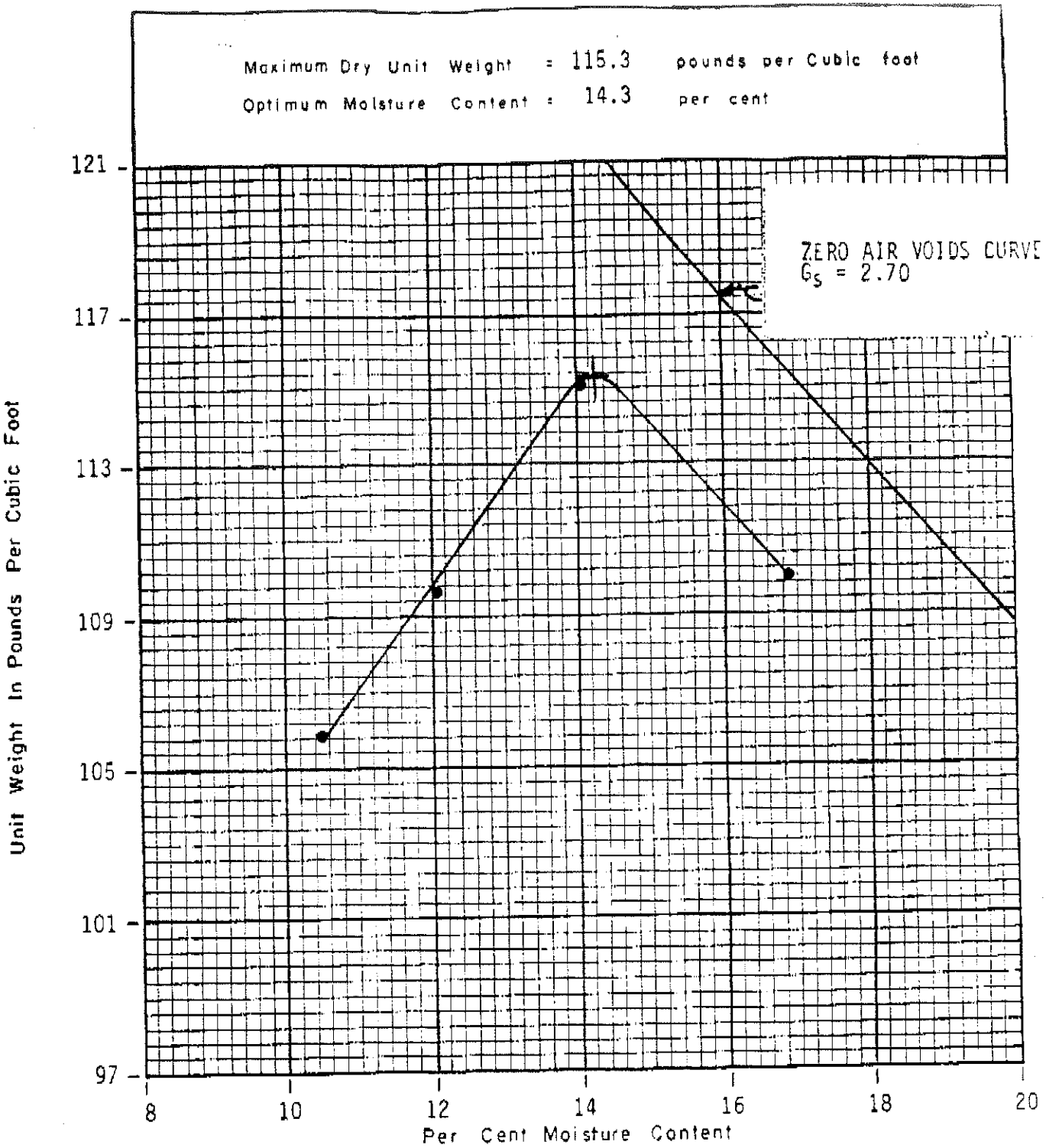
TM:meg

Enc. 1 Page

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

Maximum Dry Unit Weight = 115.3 pounds per Cubic foot

Optimum Moisture Content = 14.3 per cent



Laboratory Compaction Curve For: Brown silty CLAY

Project: CONCENTRATED WASTE SYSTEM
RENOVATION PROJECT

Client: AT&T BELL LABORATORIES

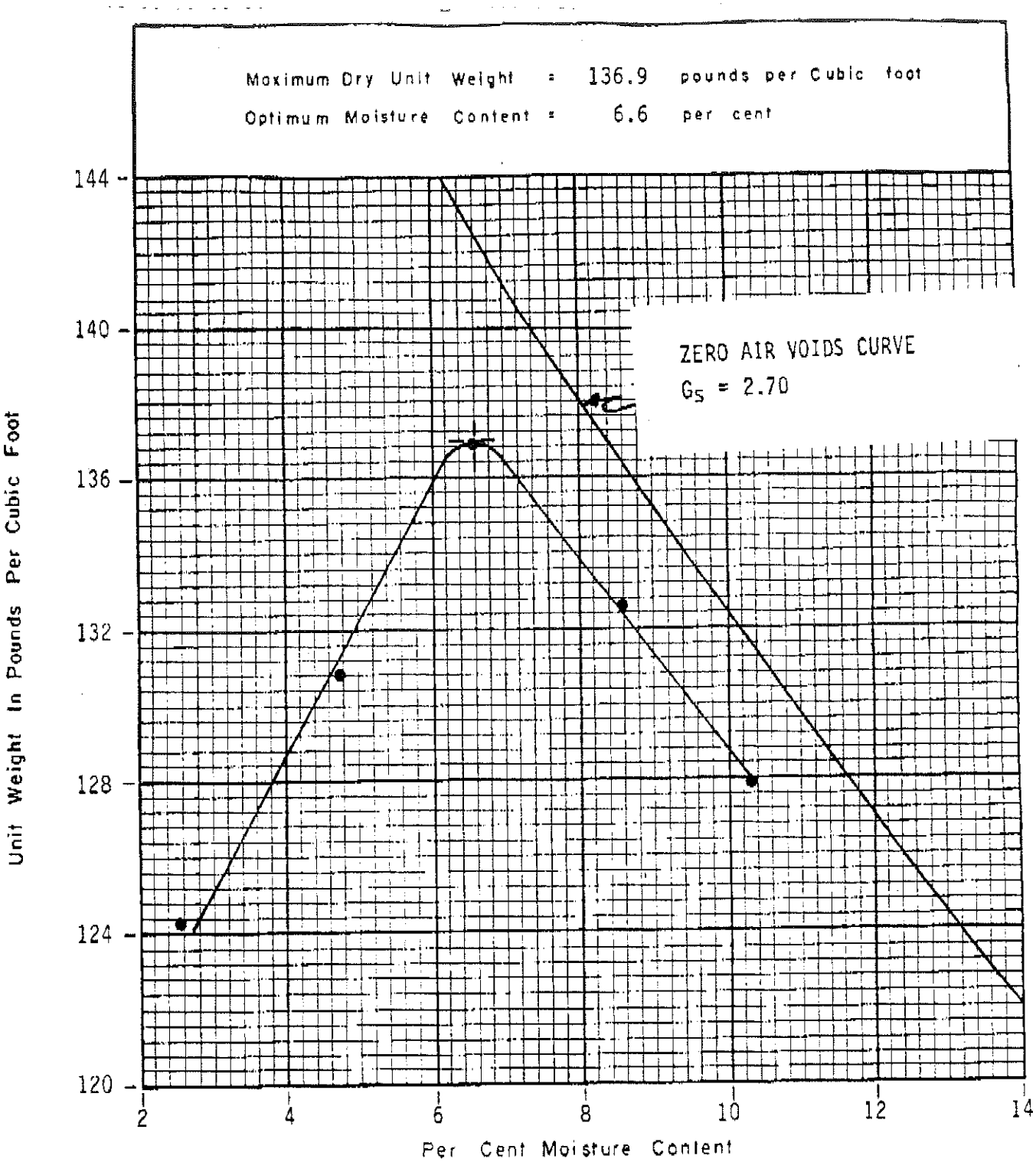
Laboratory Compaction Procedure

☐ ASTM D 1557-78

☒ AASHTO T 99-74
(ASTM D 698-78)

TESTING SERVICE CORPORATION
457 EAST GUNDERSEN DRIVE
CAROL STREAM, ILLINOIS 60188

L- 28,280
7/31/90



Laboratory Compaction Curve For: CA-6 crushed LIMESTONE

Project: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

Client: AT&T BELL LABORATORIES

Laboratory Compaction Procedure

☐ ASTM D 1557-78

☒ AASHTO T 99-74

(ASTM D 698-78)

TESTING SERVICE CORPORATION
457 EAST GUNDERSEN DRIVE
CAROL STREAM, ILLINOIS 60188

L-28,280
7/27/90

TESTING SERVICE CORPORATION

Subsurface Exploration
Geotechnical Engineering
Construction Materials Engineering & Testing
Environmental Engineering
Geosciences & Hydrogeologic Studies
Monitoring Wells

December 11, 1990

AT & T BELL LABORATORIES
2000 North Naperville Road, Room 9B-140
Naperville, Illinois 60566

Attention: Mr. Frank Girdwain
Mr. Herb Roman

RE: L - 28,280
Report No. 8
CONCENTRATED WASTE SYSTEM
RENOVATION PROJECT

Gentlemen:

The following services have been provided in connection with the referenced project:

November 8, 1990 - M. Rafi - Technician Services - 9.50 hours*
November 9, 1990 - M. Rafi - Technician Services - 9.50 hours*
November 12, 1990 - M. Rafi - Technician Services - 10.50 hours*
* Use of Nuclear Density Equipment

In-place density tests were performed for the limestone screenings and brown silty clay that was placed as trench backfill outside of Mechanical Room 2 and adjacent to the wall of the C.W.S. Tank. The limestone screenings were placed around the pipe. Based on the ASTM D-1557 (Modified) laboratory procedure the percent compaction values ranged from 91.1 to 95.4 percent. Herb Roman, the Facilities Engineer for the project, agreed to accept 90 percent compaction or greater in these areas.

The remainder of the trench was backfilled with brown silty clay. Based on the ASTM D-1557 (Modified) laboratory procedure the percent compaction values met the specification requirement of 95 percent. In a few areas the fill was accepted based on water content, dry unit weight and stability of the material under compaction equipment. The material placed in these areas had localized pockets of stone and gravel and the proctor was not representative of this material.

The percent compaction values are included with this correspondence.

Please call if there are any questions.

Respectfully submitted,

TESTING SERVICE CORPORATION

Wayne W. Moky

Wayne W. Moky, P.E.
President

Prepared by,

Fran Miller

Fran Miller

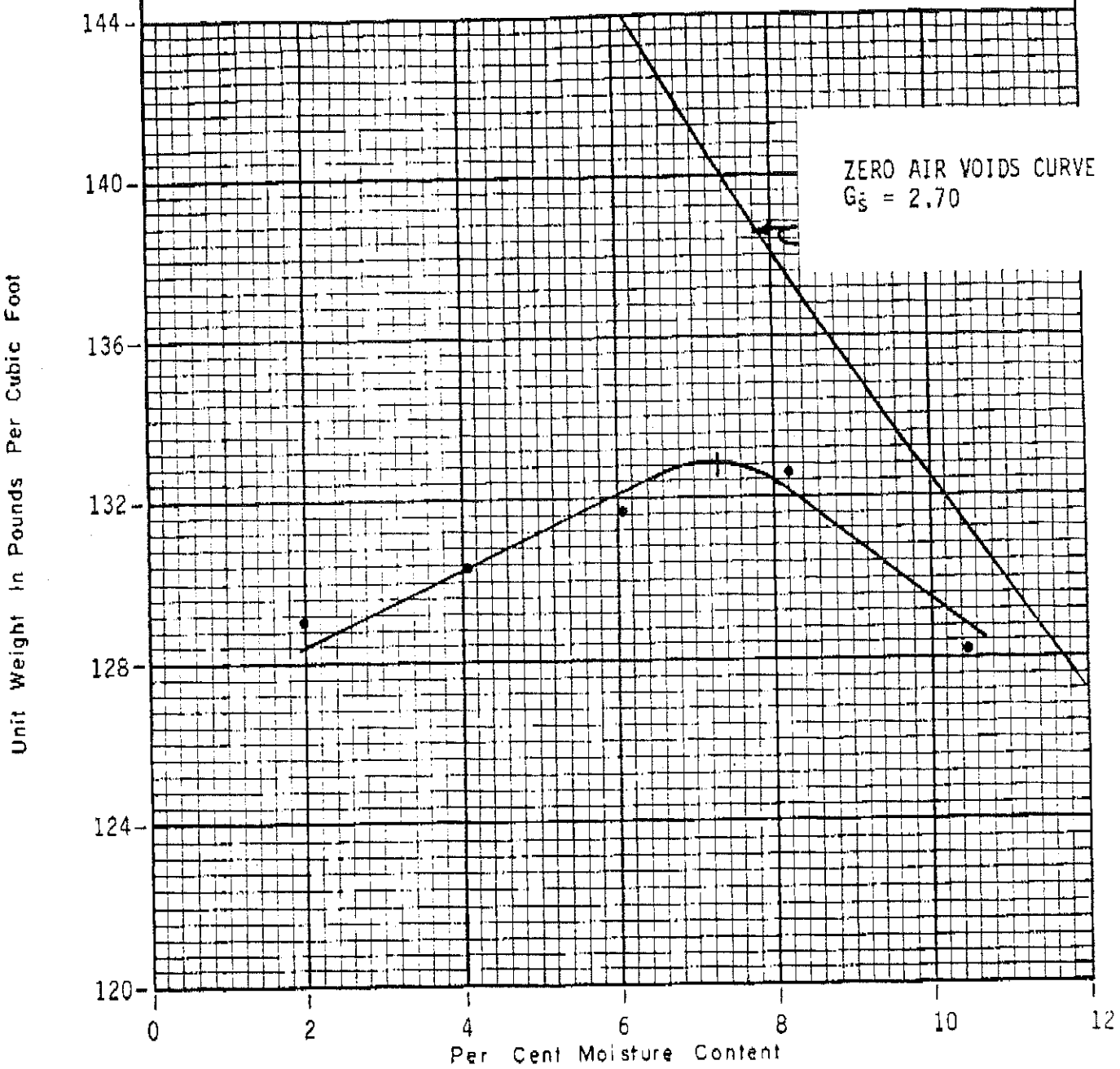
WWM:FM:meg

Enc. 2 Pages

MAIN OFFICE: 457 E. GUNDERSEN DRIVE • CAROL STREAM, IL 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920
BRANCH OFFICE: 209 CLEVELAND STREET • CARY, IL 60013-2978 • FAX: (708) 516-0527 • TEL: (708) 516-0505

Maximum Dry Unit Weight = 132.8 pounds per Cubic foot

Optimum Moisture Content = 7.3 per cent



Laboratory Compaction Curve For: FA-6 LIMESTONE SCREENINGS

Project: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

Client: AT&T BELL LABORATORIES

Laboratory Compaction Procedure

- [X] ASTM D 1557-78
- [ ] AASHTO T 99-74 (ASTM D 698-78)

TESTING SERVICE CORPORATION
457 EAST GUNDERSEN DRIVE
CAROL STREAM, ILLINOIS 60188

L-28,280
8/8/90

PERCEN COMPACTION REPORT

TSC
TESTING SERVICE CORPORATION
AST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

DATE TESTED	JOB NUMBER	PAGE NUMBER
November 8-12, 1990	L - 28,280	2 of 2

CLIENT: AT & T BELL LABORATORIES

PROJECT: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

FIELD DATA

TEST NO.	LOCATION	DEPTH/ ELEVATION	DRY UNIT WEIGHT (PCF)	MOISTURE CONTENT (%)	LCC	COMPACTION TEST (%)	COMPACTION SPECIFICATION (%)	PASS	FAIL
	November 12, 1990 Continued								
6	Adjacent to the wall of C.W.S. Tank	1.0	114.5	16.1	B	99.3	95.0	X	
7	" "	0.0	111.8	18.5	B	96.9	95.0	X	

DEPTH/ELEVATION = DEPTH IN FEET BELOW FOOTING OR FINAL SUBGRADE OR EXPRESSED AS ELEVATION

COMMENTS

*TSC recommends acceptance based on water content, dry unit weight and stability under compaction equipment. Due to a localized pocket of stone and clay a proctor was not available for this material. - (November 12, 1990).

LABORATORY COMPACTION CURVES

LCC	SOIL / MATERIAL DESCRIPTION	DRY UNIT WEIGHT (PCF)	MOISTURE CONTENT (%)	PROCEDURE
B	Brown silty CLAY, trace of sand and gravel	115.3	14.3	ASTM D 1557-78

FIELD TEST PROCEDURE	MANUFACTURER / MODEL NUMBER	SERIAL NUMBER	MODE
Nuclear Gauge	Troxler 3401 B	13358	8" Direct Transmission

FIELD TECHNICIAN	REVIEWED BY
M. Rafi	Fran Miller

PERCEN COMPACTION REPORT

TSC
TESTING SERVICE CORPORATION
1ST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

DATE TESTED	JOB NUMBER	PAGE NUMBER
November 8-12, 1990	L - 28,280	1 of 2

CLIENT: AT & T BELL LABORATORIES

PROJECT: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

FIELD DATA

TEST NO.	LOCATION	DEPTH/ ELEVATION	DRY UNIT WEIGHT (PCF)	MOISTURE CONTENT (%)	LCC	COMPACTION TEST (%)	COMPACTION SPECIFICATION (%)	PASS	FAIL	
	November 8, 1990									
1	Pipe Trench outside Mechanical Room 2	8.0	121.0	6.1	A	91.1	95.0		X	*
2	" "	7.0	126.8	8.0	A	95.4	95.0	X		
3	Adjacent to the wall of C.W.S. Tank	7.0	126.3	9.6	A	95.1	95.0	X		
	November 9, 1990									
1	Pipe Trench outside Mechanical Room 2	6.0	116.0	12.5	B	*	95.0	X		
2	Adjacent to the wall of C.W.S. Tank	6.0	114.8	13.6	B	99.5	95.0	X		
3	" "	5.0	113.5	14.5	B	98.4	95.0	X		
4	Pipe Trench outside Mechanical Room 2	5.0	119.5	14.2	B	*	95.0	X		
5	" "	4.0	113.3	14.2	B	98.2	95.0	X		
	" "	3.0	114.0	14.4	B	98.8	95,0	X		
	November 12, 1990									
1	Pipe Trench outside Mechanical Room 2	2.0	113.3	16.5	B	98.2	95.0	X		
2	Adjacent to the wall of C.W.S. Tank	3.0	111.5	16.1	B	96.7	95.0	X		
3	Pipe Trench outside Mechanical Room 2	1.0	120.8	12.9	B	*	95.0	X		
4	Adjacent to the wall of C.W.S. Tank	2.0	117.3	13.8	B	*	95.0	X		
5	Pipe Trench outside Mechanical Room 2	0.0	114.3	16.3	B	99.1	95.0	X		

DEPTH/ELEVATION = DEPTH IN FEET BELOW FOOTING OR FINAL SUBGRADE OR EXPRESSED AS ELEVATION

COMMENTS

*Herb Roman - Facilities engineer for this project will accept 90% compaction and above. (11-8-90)

*TSC recommends acceptance based on water content, dry unit weight and stability under compaction equipment. Due to a localized pocket of stone and clay a proctor was not available for this material. (11-9-90)

* See Page 2 of 2 for November 12, 1990.

LABORATORY COMPACTION CURVES

LCC	SOIL / MATERIAL DESCRIPTION	DRY UNIT WEIGHT (PCF)	MOISTURE CONTENT (%)	PROCEDURE
A	FA-6 Limestone Screenings	132.8	7.3	ASTM D 1557-78
B	Brown silty CLAY, trace of sand and gravel	115.3	14.3	ASTM D 1557-78

FIELD TEST PROCEDURE	MANUFACTURER / MODEL NUMBER	SERIAL NUMBER	MODE
Nuclear Gauge	Troxler 3401 B	13358	8" Direct Transmission

FIELD TECHNICIAN	REVIEWED BY
M. Rafi	Fran Miller

TSC

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DRIVE • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (312) 653-2726 • Telephone 312 653-3920

August 25, 1990

A T & T BELL LABORATORIES
2000 North Naperville Road, Room 9B-140
Naperville, Illinois 60566

Attention: Mr. Frank Girdwain
Mr. Herb Roman

RE: L - 28,280
Report No. 6
CONCENTRATED WASTE SYSTEM
RENOVATION PROJECT

Gentlemen:

The following services have been provided in connection with the referenced project:

July 25, 1990 - P. Smith - Technician Services - 2.75 hours*
July 26, 1990 - P. Smith - Technician Services - 1.75 hours*
August 1, 1990 - G. Search - Technician Services - 1.50 hours

* Use of Nuclear Density Equipment
Two Laboratory Compaction Curves

In-place density tests were performed for the CA-6 gray crushed limestone that was placed on July 25. A compaction of 83.0 percent was obtained. Based on the ASTM D1557-78 (Modified) laboratory procedure, the percent compaction values did not meet the specification requirement of 95 percent.

On July 26, in-place density tests were performed for the CA-6 gray crushed limestone that was placed in the trench. Based on the ASTM D1557-78 (Modified) laboratory procedure, the percent compaction values did not meet the specification requirement of 95 percent. Based on the stability indicated for the trench bottom, the CA-6 was considered to have adequate compaction for the work to proceed.

Two laboratory compaction curves, based on AASHTO T99-74, were developed. The results of these curves are summarized below.

Description	Maximum Dry Unit Weight (PCF)	Optimum Moisture Content (Percent)
CA-6 crushed limestone	136.9	6.6
Brown silty clay	115.3	14.3

Please call if there are any questions.

Respectfully submitted,

TESTING SERVICE CORPORATION

Wayne W. Mohr

Thomas Morris, P.E.

TM:MF:cn
Enc. 3 sheets

Prepared by,

Mitchell Franczyk

Mitchell Franczyk
Civil Engineer, E.I.T.

PER CENT COMPACTION REPORT

ESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT	DATE
A T & T BELL LABORATORIES	JULY 25 AND 26, 1990
PROJECT / LOCATION	**JOB NUMBER**
CONCENTRATED WASTE SYSTEM RENOVATION PROJECT	L - 28,280
ARCHITECT / ENGINEER / OWNER	**REPORT NUMBER**
	1

FIELD DATA

TEST NO.	LOCATION	ELEVATION/ DEPTH	DRY UNIT WEIGHT PCF	MOISTURE CONTENT %	LCC	COMPACTION TEST %	COMPACTION SPECIFICATION %	PASS	FAILS
	JULY 25, 1990								
1	Northeast corner	6.5	113.7	5.78	A	83.0	95.0		X
2	Northwest corner	6.5	113.7	4.63	A	83.0	95.0		X
	JULY 26, 1990								
3	Northeast corner	6.5	118.5	7.8	A	86.5	95.0		X
4	20'S. of Northeast corner	6.5	116.7	7.1	A	85.1	95.0		X
5	Southeast corner	6.5	119.9	4.25	A	87.5	95.0		X
6	Northwest corner	6.5	122.4	6.05	A	89.3	95.0		X
-	Southeast corner	6.5	118.9	7.2	A	86.8	95.0		X
	Northwest corner	6.5	120.1	7.2	A	87.7	95.0		X

COMMENTS

LABORATORY COMPACTION CURVES

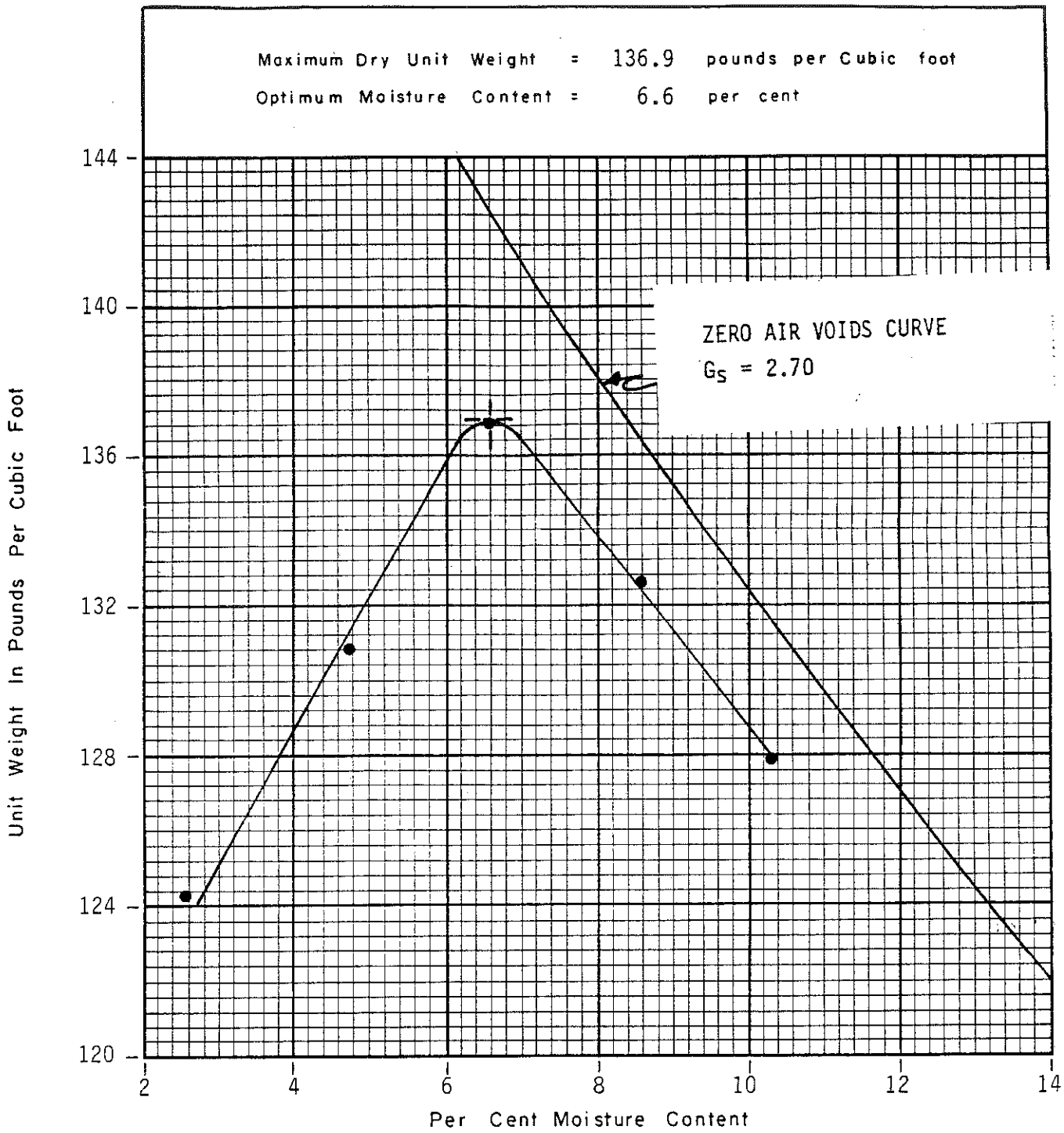
CC	SOIL / MATERIAL DESCRIPTION	DRY UNIT WEIGHT PCF	MOISTURE CONTENT %	PROCEDURE
A	CA-6 Gray crushed LIMESTONE	136.9	6.6	AASHTO T99

FIELD TEST PROCEDURE	MANUFACTURER / MODEL NUMBER	SERIAL NUMBER	MODE
ar Gauge	Humboldt Troxler-3401B	12010	8" Direct Transmission 2" Direct Transmission

FIELD TECHNICIAN
?. Smith

Reviewed By:

Mitchell Franczyk



Laboratory Compaction Curve For: CA-6 crushed LIMESTONE

Project: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

Client: AT&T BELL LABORATORIES

Laboratory Compaction Procedure

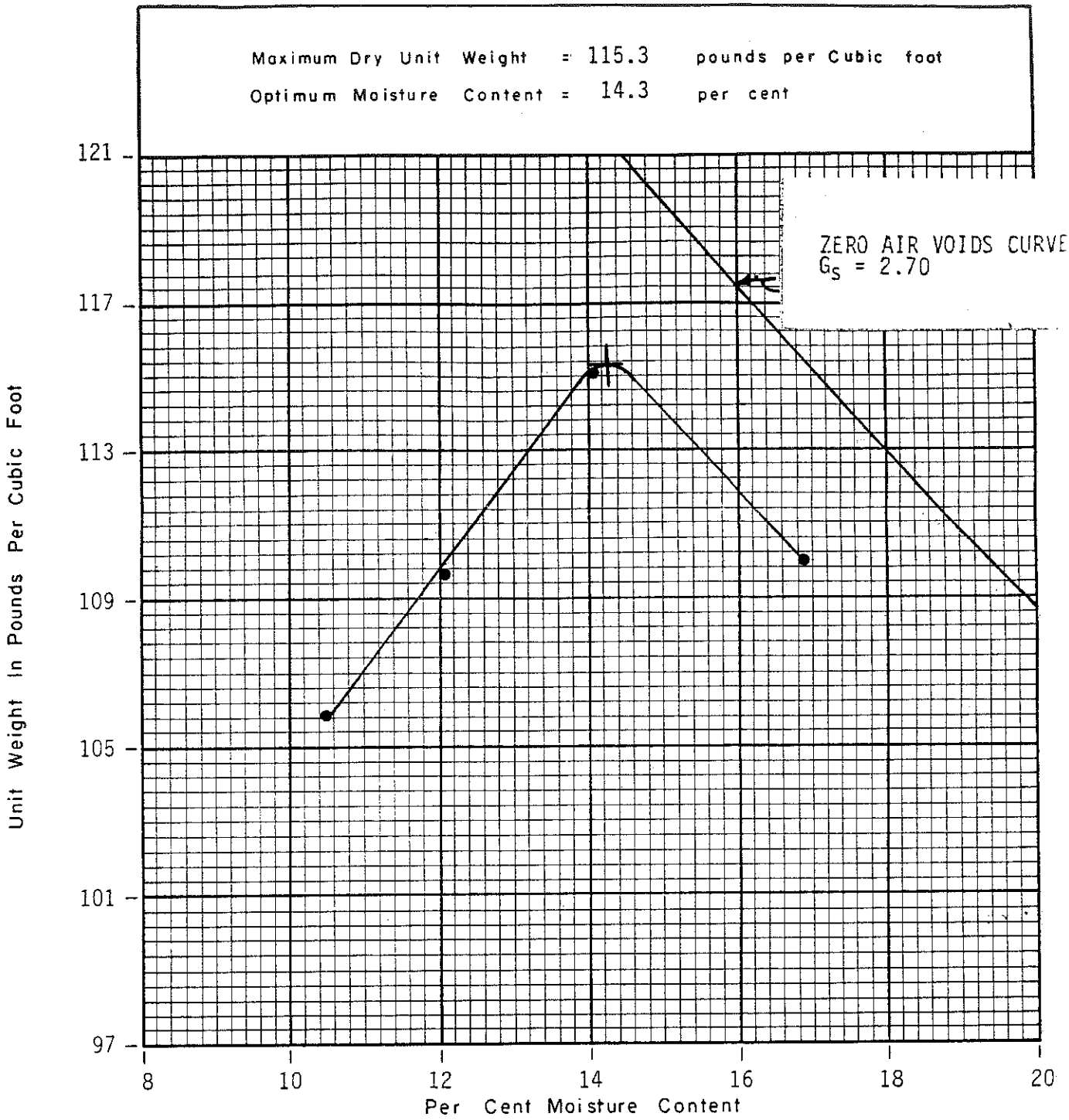
☐ ASTM D 1557-78

☒ AASHTO T 99-74

(ASTM D 698-78)

TESTING SERVICE CORPORATION
457 EAST GUNDERSEN DRIVE
CAROL STREAM, ILLINOIS 60188

L-28,280
7/27/90



Laboratory Compaction Curve For: Brown silty CLAY

Project: CONCENTRATED WASTE SYSTEM
RENOVATION PROJECT

Client: AT&T BELL LABORATORIES

Laboratory Compaction Procedure

☐ ASTM D 1557-78

☒ AASHTO T 99-74
(ASTM D 698-78)

TESTING SERVICE CORPORATION
457 EAST GUNDERSEN DRIVE
CAROL STREAM, ILLINOIS 60188

L- 28,280
7/31/90

FIELD REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492

Telephone 708/653-3920

DATE 7-25-90

PROJECT AT+T

TSC JOB No. 28280

LOCATION NAPERVILLE; WARRENVILLE + NAPERVILLE RD

CONTRACTOR

CLIENT

ARRIVE JOB 2:00

DEPART JOB 3:45

TOTAL HOURS ON JOB 1.75

MILEAGE 18

TRAVEL TIME 1 HOUR

TOLLS —

FIELD CHARGEABLE HOURS 2.75 MINIMUM CHARGE FOR TRIP WILL BE 4 HOURS

SUMMARY OF SERVICES PERFORMED: COMPACTION CONTROL: USING AN ESTIMATED PROCTOR OF 137 DRY & WGH PCF @ 6.2% MOISTURE I CAME UP WITH A COMPACTION RANGE OF 60.34 TO 82.96%. THE CLIENT ASKED FOR A BAG SAMPLE TO BE TAKEN SO A MORE ACCURATE PROCTOR CAN BE USED. ALL AREAS CHECKED WITH A HUMBOLDT 5002, SER # 510.

ATTESTED TO NO ONE

POSITION AVAILABLE TO

COMPANY SIGN

BY Patrick D Smith

TESTING SERVICE CORPORATION

PER CE T COMPACTION REPORT

STING SERVICE CORPORATION

ST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT	DATE
A T & T BELL LABORATORIES	JULY 25 AND 26, 1990
PROJECT / LOCATION	**JOB NUMBER**
CONCENTRATED WASTE SYSTEM RENOVATION PROJECT	L - 28,280
ARCHITECT / ENGINEER / OWNER	**REPORT NUMBER**
	1

FIELD DATA

TEST NO.	LOCATION	ELEVATION/ DEPTH	DRY UNIT WEIGHT PCF	MOISTURE CONTENT %	LCC	COMPACTION TEST %	COMPACTION SPECIFICATION %	PASS	FAILS
	JULY 25, 1990								
1	Northeast corner	6.5	113.7	5.78	A	83.0	95.0		X
2	Northwest corner	6.5	113.7	4.63	A	83.0	95.0		X
	JULY 26, 1990								
3	Northeast corner	6.5	118.5	7.8	A	86.5	95.0		X
	20'S. of Northeast corner	6.5	116.7	7.1	A	85.1	95.0		X
[illegible]	Southeast corner	6.5	119.9	4.25	A	87.5	95.0		X
6	Northwest corner	6.5	122.4	6.05	A	89.3	95.0		X
	Southeast corner	6.5	118.9	7.2	A	86.8	95.0		X
[illegible]	Northwest corner	6.5	120.1	7.2	A	87.7	95.0		X

COMMENTS

LABORATORY COMPACTION CURVES

LCC	SOIL / MATERIAL DESCRIPTION	DRY UNIT WEIGHT PCF	MOISTURE CONTENT %	PROCEDURE
A	CA-6 Gray crushed LIMESTONE	136.9	6.6	AASHTO T99

TEST PROCEDURE	MANUFACTURER / MODEL NUMBER	SERIAL NUMBER	MODE
N [illegible] Gauge	Humboldt Troxler-3401B	12010	8" Direct Transmission 2" Direct Transmission

FIELD TECHNICIAN
P Smith

Reviewed By:

Mitchell Franczyk

Please call if there are any questions.

Respectfully submitted,

TESTING SERVICE CORPORATION

Wayne W. Mohr

Thomas Morris, P.E.

TM:MF:cn
Enc. 3 sheets

Prepared by,

Mitchell Franczyk

Mitchell Franczyk
Civil Engineer, E.I.T.

REPORT DATE: 8-02-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 2887 **JOB:** 28,280

CONCRETE SUPPLIER:

DATE OF POUR: 7-05-90

SAMPLED BY: CONTRACTOR

WEATHER: **TEMP:**

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT			FLY ASH		
FINE AGGREGATE			COARSE AGGREGATE		
Water					

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1							1 2

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	18776		7	113080	4000	A							
1	18777FC		28	145540	5150	A							

CC: FRANK GIROWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.

AUTHORIZED SIGNATURE

Legend of breaks

REPORT DATE: 7-12-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 2887 **JOB:** 28,280

CONCRETE SUPPLIER:

DATE OF POUR: 7-05-90

SAMPLED BY: CONTRACTOR

WEATHER: **TEMP:**

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT			FLY ASH		
FINE AGGREGATE			COARSE AGGREGATE		
Water					

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1							1 2

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	18776		7	113080	4000	A							
1	18777FC		28										

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.

AUTHORIZED SIGNATURE

Legend of breaks

REPORT DATE: 7-09-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 98-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: NAPERVILLE REDI MIX

SAMPLED BY: M DUSCH

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 2154 **JOB:** 28,280

DATE OF POUR: 6-11-90

WEATHER: SUNNY **TEMP:** 68

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	752	LB	FLY ASH		
FINE AGGREGATE	1,400	LB	LIMESTONE	1,660	LB
WATER	203.0	LB			

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1	15.0	37/1	6.80	7.00	142.8	78	FLOOR SLAB OF PLATING ROOM

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	15870		1	129360	4580	A	-----	8 Hours					
1	15871		1	148910	5270	A	-----	FIELD CURE					
1	15872		1	157120	5560	A	-----	LAB CURE					
1	15873		3	200000	7080	A	-----	LAB CURE					
1	15874	8000	7	238860	8450	A	-----	LAB CURE					
1	15875		28	280840	9930	A	-----	LAB CURE					

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: N8.0

Thomas Morris

AUTHORIZED SIGNATURE

Legend of breaks

REPORT DATE: 6-19-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: ELMHURST-CHICAGO

SAMPLED BY: M DUSCH

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1791 **JOB:** 28,280

DATE OF POUR: 5-22-90

WEATHER: SUNNY **TEMP:**

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB			
FINE AGGREGATE	1,491	LB	COARSE AGGREGATE	1,696	LB
WATER	305.0	LB			

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1	6.5	77/1		4.00			SMALL SECTION OF BASEMENT FLOOR SLAB

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	14059		7	116270	4110	A							
1	14060		7	115830	4100	A							
1	14061		7	115200	4080	A							
1	14062	4000	28	154350	5460	A							
1	14063	4000	28	154670	5470	A							
1	14064	4000	28	157300	5560	A							

CC: FRANK GIROWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC1511

AUTHORIZED SIGNATURE

Legend of breaks

REPORT DATE: 6-18-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: NAPERVILLE REDI MIX

SAMPLED BY: M DUSCH

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 2154 **JOB:** 28.280

DATE OF POUR: 6-11-90

WEATHER: SUNNY **TEMP:** 68

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	752	LB	FLY ASH		
FINE AGGREGATE	1,400	LB	LIMESTONE	1,660	LB
WATER	203.0	LB			

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1	15.0	37/1	6.80	7.00	142.8	78	FLOOR SLAB OF PLATING ROOM

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	15870		1	129360	4580	A							
1	15871		1	148910	5270	A							
1	15872		1	157120	5560	A							
1	15873		3	200000	7080	A							
1	15874	8000	7	238860	8450	A							
1	15875		28										

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: N8.0

AUTHORIZED SIGNATURE

Legend of breaks

REPORT DATE: 6-15-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1552 **JOB:** 28,280

CONCRETE SUPPLIER: ELMHURST-CHICAGO

DATE OF POUR: 5-18-90

SAMPLED BY: J PATEL

WEATHER: SUNNY **TEMP:** 52

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB	FLY ASH		
FINE AGGREGATE	1,390	LB	COARSE AGGREGATE	1,696	LB
WATER	275.0	LB	Admix: AIR ENTRAINING	5.5	OZ

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1	19.0	25/1	5.20	3.75	144.8	72	PIPE TRENCH WALL MIC ROOM 2 3.5' TO GROUND LEVEL

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	13499		7	115290	4080	A							
1	13500		7	115500	4090	A							
1	13502	4000	28	138280	4890	A							
1	13503	4000	28	132520	4690	A							
1	13504F	4000	28	140790	4980	A							
1	13501F		8	-CYLINDER MISSING-									

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC1504

AUTHORIZED SIGNATURE

Legend of breaks

REPORT DATE: 6-14-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: NAPERVILLE REDI MIX

SAMPLED BY: M DUSCH

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 2154 **JOB:** 28,280

DATE OF POUR: 6-11-90

WEATHER: SUNNY **TEMP:** 68

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	752	LB	FLY ASH		
FINE AGGREGATE	1,400	LB	LIMESTONE	1,660	LB
WATER	203.0	LB			

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1	15.0	37/1	6.80	7.00	142.8	78	FLOOR SLAB OF PLATING ROOM

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	15870		1	129360	4580	A							
1	15871		1	148910	5270	A							
1	15872		1	157120	5560	A							
1	15873		3	200000	7080	A							
1	15874	8000	7										
1	15875		28										

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: N8.0

AUTHORIZED SIGNATURE

Legend of breaks

REPORT DATE: 6-06-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: ELMHURST-CHICAGO

SAMPLED BY: N NICHOLSON

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1396 **JOB:** 28,280

DATE OF POUR: 5-09-90

WEATHER: OVERCAST **TEMP:** 72

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB			
FINE AGGREGATE	1,390	LB	COARSE AGGREGATE	1,696	LB
WATER	275.0	LB	Admix: AIR ENTRAINING	5.5	OZ

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1	4.0	88/1	6.70	4.50	140.8	75	WALLS IN PC SHOP

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	12499		7	108530	3840	A							
1	12500		7	114610	4050	A							
1	12503F		10	109830	3890	A							
1	12501	4000	28	130050	4600	A							
1	12502	4000	28	128380	4540	A							
1	13798 F	4000	28	161440	5710	A							

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC1504

AUTHORIZED SIGNATURE

Legend of breaks

A

B

C

D

E

REPORT DATE: 6-01-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 98-140
NAPERVILLE, ILLINOIS 60566

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1320 **JOB:** 28,280

CONCRETE SUPPLIER: ELMHURST-CHCIAGO

DATE OF POUR: 5-04-90

SAMPLED BY: L SANTOS

WEATHER: RAINY **TEMP:** 52

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB			
FINE AGGREGATE	1,460	LB	COARSE AGGREGATE	1,710	LB
WATER	265.0	LB	Admix: WATER REDUCER HE	45.1	OZ
Admix: WATER REDUCER N	45.1	OZ	Admix: AIR ENTRAINING	5.5	OZ

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1		30/2		5.25	142.6	68	PRINTING CIRCUIT SHOP TRENCH FTG @ BASEMENT COL HW4 TO HW6 TO GW6

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	12163		7	144450	5110	A							
1	12164		7	141680	5010	A							
1	12165		7	139690	4940	A							
1	12166		7	144450	5110	A							
1	12167F		7	132550	4690	A							
1	12168	4000	28	182680	6460	A							
1	12169	4000	28	183240	6480	A							
1	12170F	4000	28	172370	6100	A							

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC3075

AUTHORIZED SIGNATURE

Legend of breaks

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REPORT DATE: 6-01-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1321 **JOB:** 28,280

CONCRETE SUPPLIER: ELMHURST-CHCIAGO

DATE OF POUR: 5-04-90

SAMPLED BY: L SANTOS

WEATHER: RAINY **TEMP:** 52

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB			
FINE AGGREGATE	1,460	LB	COARSE AGGREGATE	1,710	LB
WATER	265.0	LB	Admix: WATER REDUCER HE	45.1	OZ
Admix: WATER REDUCER N	45.1	OZ	Admix: AIR ENTRAINING	5.5	OZ

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1							PLACEMENT -PRINTING CIRCUIT SHOP TRENCH FTG/BSMNT COL HW4-HW6-GW6

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	12437		7	132550	4690	A							
1	12438	4000	28	158130	5590	A							

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC3075

AUTHORIZED SIGNATURE

Legend of breaks

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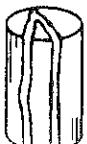
E

REPORT DATE: 5-29-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 98-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: ELMHURST-CHICAGO

SAMPLED BY: M DUSCH

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1791 **JOB:** 28,280

DATE OF POUR: 5-22-90

WEATHER: SUNNY **TEMP:**

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB			
FINE AGGREGATE	1,491	LB	COARSE AGGREGATE	1,696	LB
WATER	305.0	LB			

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1	6.5	77/1		4.00			SMALL SECTION OF BASEMENT FLOOR SLAB

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	14059		7	116270	4110	A							
1	14060		7	115830	4100	A							
1	14061		7	115200	4080	A							
1	14062	4000	28										
1	14063	4000	28										
1	14064	4000	28										

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC1511

AUTHORIZED SIGNATURE

Legend of breaks

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REPORT DATE: 5-25-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: ELMHURST-CHICAGO

SAMPLED BY: J PATEL

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1552 **JOB:** 28,280

DATE OF POUR: 5-18-90

WEATHER: SUNNY **TEMP:** 52

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB	FLY ASH		
FINE AGGREGATE	1,390	LB	COARSE AGGREGATE	1,696	LB
WATER	275.0	LB	Admix: AIR ENTRAINING	5.5	OZ

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1	19.0	25/1	5.20	3.75	144.8	72	PIPE TRENCH WALL MIC ROOM 2 3.5' TO GROUND LEVEL

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	13499		7	115290	4080	A							
1	13500		7	115500	4090	A							
1	13501F		8	-CYLINDER MISSING-									
1	13502	4000	28										
1	13503	4000	28										
1	13504F	4000	28										

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC1504

AUTHORIZED SIGNATURE

Legend of breaks

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REPORT DATE: 5-19-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: ELMHURST-CHICAGO

SAMPLED BY: N NICHOLSON

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1396 JOB: 28,280

DATE OF POUR: 5-09-90

WEATHER: OVERCAST TEMP: 72

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB			
FINE AGGREGATE	1,390	LB	COARSE AGGREGATE	1,696	LB
WATER	275.0	LB	Admix: AIR ENTRAINING	5.5	OZ

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1	4.0	88/1	6.70	4.50	140.8	75	WALLS IN PC SHOP

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	12499		7	108530	3840	A							
1	12500		7	114610	4050	A							
1	12503F		10	109830	3890	A							
1	12501		7	130050	4600	A							
1	12502		7	108380	3830	A							

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC1504

AUTHORIZED SIGNATURE

Legend of breaks

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REPORT DATE: 5-11-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

CLIENT: AT & T BELL LABORATORIES
2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: ELMHURST-CHCIAGO

SAMPLED BY: L SANTOS

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1320 **JOB:** 28,280

DATE OF POUR: 5-04-90

WEATHER: RAINY **TEMP:** 52

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB			
FINE AGGREGATE	1,460	LB	COARSE AGGREGATE	1,710	LB
WATER	265.0	LB	Admix: WATER REDUCER HE	45.1	OZ
Admix: WATER REDUCER N	45.1	OZ	Admix: AIR ENTRAINING	5.5	OZ

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1		30/2		5.25	142.6	68	PRINTING CIRCUIT SHOP TRENCH FTG @ BASEMENT COL HW4 TO HW6 TO GW6

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	12163		7	144450	5110	A							
1	12164		7	141680	5010	A							
1	12165		7	139690	4940	A							
1	12166		7	144450	5110	A							
1	12167F		7	132550	4690	A							
1	12168	4000	28										
1	12169	4000	28										
1	12170F	4000	28										

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC3075

AUTHORIZED SIGNATURE

Legend of breaks

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REPORT DATE: 5-11-90

CONCRETE INSPECTION REPORT

TESTING SERVICE CORPORATION

457 EAST GUNDERSEN DR. • CAROL STREAM, ILLINOIS 60188-2492 • FAX: (708) 653-2726 • TEL: (708) 653-3920

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2000 NORTH NAPERVILLE ROAD
ROOM 9B-140
NAPERVILLE, ILLINOIS 60566

CONCRETE SUPPLIER: ELMHURST-CHCIAGO

SAMPLED BY: L SANTOS

JOB: CONCENTRATED WASTE SYSTEM RENOVATION PROJECT

P.O. NO.:

FIELD REPORT NO: 1321 **JOB:** 28,280

DATE OF POUR: 5-04-90

WEATHER: RAINY **TEMP:** 52

MATERIALS	QTY/CU. YD.	U/M	MATERIALS	QTY/CU. YD.	U/M
CEMENT	564	LB			
FINE AGGREGATE	1,460	LB	COARSE AGGREGATE	1,710	LB
WATER	265.0	LB	Admix: WATER REDUCER HE	45.1	OZ
Admix: WATER REDUCER N	45.1	OZ	Admix: AIR ENTRAINING	5.5	OZ

SET NO.	YARDS POURED	TRUCK NUMBER	% AIR	INCHES SLUMP	DENSITY #/CU. FT.	CONC. TEMP.	POUR LOCATION AND NOTES
1							PLACEMENT -PRINTING CIRCUIT SHOP TRENCH FTG/BSMNT COL HW4-HW6-GW6

SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE	SET NO.	SAMPLE NUMBER	DESIGN STRENGTH	TEST AGE	TOTAL FORCE	PSI	BREAK TYPE
1	12437		7	132550	4690	A							
1	12438	4000	28										

CC: FRANK GIRDWAIN, AT & T BELL LABORATORIES
HERB ROMAN, AT & T BELL LABORATORIES

Tests performed according to:
ASTM C-39 6"x12" Cylinders
Area: 28.27 Sq.In.
CONCRETE MIX #: EC3075

AUTHORIZED SIGNATURE

Legend of breaks

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