GEORGIA INSTITUTE OF TECHNOLOGY
OFFICE OF CONTRACT ADMINISTRATION
SPONSORED PROJECT INITIATION

Date: March 3, 1980

Project Title: Design of Acoustical Treatment for Noise Control in the Continental Forest Industries Sawmill in Hazelhurst, Ga.

Project No: A-2578

Project Director: Mr. George H. Lee

Co

Sponsor: Continental Forest Industries, a Unit of the Continental Group, Inc.

Agreement Period: From February 12, 1980 Until August 11, 1981

Type Agreement: Standard Industrial Agreement, and P.O. No. 770-X-~~5~~ 1012, dated 1/16/80

Amount: $18,908

Reports Required: Quarterly Progress Reports

Sponsor Contact Person (s):

Technical Matters

~~Mr. Jerome B. Rogers~~
~~Plant Production Manager~~
~~The Continental Group, Inc.~~
~~P. O. Box 416~~
~~Hazelhurst, GA 31539~~

Contractual Matters
(thru OCA)

See Revision

Defense Priority Rating: None

Assigned to: EEL/IED (School/Laboratory)

COPIES TO:

- Project Director
- Division Chief (EES)
- School/Laboratory Director
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- Project Code (GTRI)
- Other

A-2578

GEORGIA INSTITUTE OF TECHNOLOGY **OFFICE OF CONTRACT ADMINISTRATION**

SPONSORED PROJECT TERMINATION SHEET

Date 10/27/81

Project Title: Design of Acoustical Treatment for Noise Control in the Continental Forest Industries' Sawmill in Hazelhurst, Ga.

Project No: A-2578

Project Director: George H. Lee

Sponsor: Continental Forest Industries, a unit of the Continental Group, Inc.

Effective Termination Date: 8/31/81

Clearance of Accounting Charges: 8/31/81

Grant/Contract Closeout Actions Remaining:

☒ Final Invoice ~~and Closing Documents~~

☐ Final Fiscal Report

☐ Final Report of Inventions

☐ Govt. Property Inventory & Related Certificate

☐ Classified Material Certificate

☐ Other ____________________

Assigned to: EDL (~~School~~/Laboratory)

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FORM OCA 10:781

A2578

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION
ATLANTA, GEORGIA 30332

ENGINEERING EXTENSION LABORATORY
Central Georgia Area Office
1818 Forsyth Street
Suite 112
P. O. Box 5105
Macon, Georgia 31208

May 9, 1980

Mr. Jerome B. Rogers
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Please allow me to summarize our findings and progress to date as work is proceeding on your noise control program at Mill No. 152. Also, I will use this opportunity to put on paper other thoughts and recommendations, some of which we have previously discussed.

Hearing protection has been evaluated for several of the worst cases at your mill. This was done by the so-called "two-sigma" method. Basically it takes the levels found, subtracts off the published attenuation that the plug manufacturer supplies, and then adds two standard deviations back for a safety factor. Picking a plug to use involves not just getting one with high attenuations, but also low deviations. This all assumes that the plugs are fitted and worn correctly.

Originally, I looked at the Apex (white) V-51R type plugs (these are made by several manufacturers and are of U. S. Air Force origin) and the Willson Sound Silencer (black). These were the plugs you were using when I first started coming down. At some point though, the Norton Com-fit and another make of V-51R were ordered, as it was not realized that plugs are different. Connie Hanson was asked to stick with these plugs until an evaluation could be made of their effectiveness.

A chart enclosed indicates various protected levels which were calculated from conservative octave band samples of the noise. Corresponding dBA (Overall) levels are indicated. See example of evaluation sheet enclosed, too.

From these data we can rate the plugs as: 1) E-A-R best; 2) V-51R better (several makers - Apex and Fibre Metal included); and, 3) Com-fit good.

Connie was supplied with prices and order information and asked to order the E-A-R disposable plug. She indicated on April 2nd that they had been ordered. There are several other disposable type plugs on the market, too, but this is indeed one of the best at the present time. Besides excellent attenuation, it is more comfortable for the wearer and will, hopefully, be tried, worn and liked. Another real "plus" for this type plug is that it is malleable, and does not have to be individually fitted. This, of course, is one reason for its superior attenuation.

It is a good idea to have several types of hearing protection available to your employees. By picking one type or another, they feel that they are more a part of the decision. For this reason, keep the V-51R and the Com-fit plugs available, too. These plugs do, however, require that Connie, or someone, "fit" them. She was also asked to order a small ball-ended sizing device and to obtain other sizes of these plugs. You have had only mediums in stock. The V-51R comes in a total of five sizes (extra-small, small, medium, large, extra large). The Com-fit comes in three (small, medium, large).

Some experience in canal sizing will best dictate just what sizes of plugs should be kept on hand. I have learned that black people have smaller ear canals than white people, on the average. This indicates that it would definitely be advisable to stock smaller sizes.

A set of muffs were available to the planer technician and planer infeed operator during my very first visits with you. They are not there now. Since protected levels inside the planer enclosure are not below 90 dBA, then it would be best to provide additional protection for these workers or others who go into the planer enclosure. No one should be exposed to over 115 dBA (as often exists in the planer enclosure) unprotected for any length of time. I am seeking a strap which can be added to your Continental hard hats to hold "flip-down" muffs. With this, personnel who normally wear plugs can flip these muffs down for use inside this enclosure (in addition to plugs).

I would like to urge, again, that baseline audiograms be done. I did recontact Jim Hankla at the Ware County Health Department as you requested on March 24th. His prices have not changed since those mentioned in my letter of November 6, 1979, to Alan Humphrey. This information and a discussion of the need to fix the room up for the tests was discussed with Ed Hester during the week of March 24th. Hankla needs about a two week lead time. He also will come in on a Saturday, if desired. As I mentioned to you, the OSHA IHFOM (see enclosure) recommends a sixteen hour quiet time just prior to testing. Since this is impractical, be sure that the workers are wearing their hearing protection during the day of the tests. Try to test on Mondays and early in the day.

I've asked several workers at random if they had had an audiometric (hearing) test when they were employed or since they have been employed. I have not found anyone who has had them. Since the baseline is especially important, I would recommend Hankla (or whoever) do the tests on everyone employed who ever has reason to go past your office area. At such time as controls are instituted, then tests can be eliminated for the "quiet" area people, or people who become sufficiently protected by controls.

Hankla does a conscientious, thorough job, I think. For his money I think he tries to give a lot of motivation to the employees, too. E-A-R (and others) have free-loan motivational films which can be worked into this same testing period time, if desired, or used at later safety meetings.

Please continue to encourage your supervisors to wear hearing protection. I think that their example is worth a lot! Workers (at least when I'm around) appear to be pretty consistent in the wearing of their protection.

I, myself, have not seen your mill's written safety policy, such as the one which must exist for hard hat usage. A written policy for hearing protection usage should also exist - and be made known, too. It might parallel the hard hat rules - maybe three violation allowances with warning, suspension and dismissal. Both plugs and hats protect the worker. We all know how very desirable it is to wear hard hats; it's demonstrated almost daily. Noise damage risk is not nearly as immediately obvious to us because any damage occurs so slowly. This kind of written policy can go a long way toward demonstrating serious management resolve toward solving noise problems. Make OSHA aware that such a policy is in effect and is enforced when they visit.

As part of the above policy, it would be good to issue plugs as well as hard hats to all visitors. The disposable ones will be good for this. And - for goodness sakes - don't anyone show OSHA (or other type) inspectors around without hearing protection being used by the inspector and the person accompanying him.

Page IV-16 of the IHFOM mentioned above (enclosed) contains the four points which appeared in OSHA's letter to you sometime in the Fall of 1979, I believe. I think they sent that letter to everyone who had been previously cited for noise.

I have never received a copy of your citations. This has been requested from the start, and I know you called Savannah on it. Maybe they got lost in the mails???? I am still quite willing to go to the Savannah

OSHA office. I mentioned this to Ed Hester on April 1st or 2nd when I was down. Also, I tried on April 7th to reach you at home, as well as on April 8th at the office, to find out your desires.

You are probably doing this, but it would be a good idea to document the time and money which you and your people spend dealing with noise control implementation - discussions, building enclosures, plugs ordered, safety meetings, audiometric testing, etc. I have mentioned this to Connie.

Measurements have been made for general layout purposes of the planer mill, chip-n-saw mill, and band mill. Measurements and layouts have also been made of the planer enclosure and all three trim saws. Photos of several existing enclosures and machines have been made.

Letters have been sent to the makers of your equipment for any suggestions that they may have for noise abatement at the source, including any pre-made enclosure for retrofit.

A large percentage of the task levels required for the initial (before treatment) dose computations have been recorded with Type I equipment on a graphic level recorder and calculated. A partial listing of these equivalent levels is enclosed for your information. These levels, as well as supporting details, will ultimately be included in the initial exposure profile report. Some delay has been experienced, as might be expected, because of the band mill shut down, an inadvertent mill shut down because of a railroad chip car shortage, or just normal downtime, hangups, etc. Every effort is being made to utilize field time to your best advantage. I recognize that your mill, as others, must react to adverse nationwide housing market conditions, and I hope these conditions improve soon.

Interviews were conducted by Sherman Dudley and me with you and various supervisors to determine reasonable worker task times - that is how long workers did each task. This is still ongoing, especially in regard to setting downtimes and cross-checking for accuracy. Shift changes have probably aggravated this effort some because of personnel changes and getting out of the "routine" day.

Limited audio dosimeter surveys have been done. The one instance where it was done all day gave lower results than the OSHA data I've seen - probably because quieter running 1x4's happened to be in-work that day. More extensive dosimeter surveys could yield knowledge of downtimes.

Concurrently, as work is continuing to fill in these task levels, we are beginning to move to look at designs for source treatment, initially in the planer mill. A general observation of previous efforts at control by enclosures is that the enclosures did not have any absorption and were not heavy enough to withstand just normal sawmill wear-and-tear (as at the chip-n-saw trim saw). It could be that absorption, previously installed, has come off and was not replaced. The importance of enclosure hole minimization seems to have been generally understressed, too.

I have made notes of many items which need attention, noise-wise, as task level measurements were being made - such as air exhausts, booth disrepair, etc. I feel that it is best to hold these at least until initial levels are completed, otherwise we can't document any improvement.

Your planer enclosure seems to be basically well made with quite sufficient transmission loss for the most part. It's integrity is compromised, however, by leaks at the doors, the lower transmission loss of the 2'x4' observation window near the infeed man, and any unnecessarily large openings for infeed and outfeed.

One of my first recommendations of treatment in the planer mill area is to add absorption material inside your planer enclosure. This is necessary to reduce reverberant buildup inside the enclosure. This, in turn, enables the massive part of your enclosure to do its job even better, and lower the levels outside the enclosure, as well as inside it. A minimum of 50% (≅800 sq. ft.) and a practical maximum of 75% (≅1,000 sq. ft.) of the total inside enclosure surface area should be covered to be effective.

A most effective long-term material to use inside the planer enclosure is Owens-Corning 1" Painted Linear Glass Cloth Board. Besides fulfilling acoustical requirements, this material is resistant to dust penetration. The impregnation of sound absorbing material with fine wood dust creates a potentially hazardous fire or explosion problem. It is highly recommended that wood dust accumulation, even with this material, be monitored and periodically removed. Its cost is high: 1/1/80 price $1.60 per sq. ft. in small lots thru Hazlehurst Lumber and Supply Co., Inc.

The acoustical performance of this material improves as it is spaced further from the wall. Apply the 4'x8' sheets to the walls on top of a previously installed 2"x4" stud wall, 2' on centers. See sketch. Do not feel like every square foot of area has to be covered (such as near outfeed cross-over stairs or within 1' of infeed hole on the inside) but try to cover the 800-1,000 square foot limits above. For the ceiling, just attach the board directly to the plywood with large-headed nails, such as is used to attach roofing paper. Do not space it out as the walls. Do not obstruct any sprinkler heads. This work should be done with the planer off. Be sure to orient the material correctly with the painted linear surface facing the planer and the linear lines vertical.

There is often a reluctance (usually encountered) to the installation of such material as above due to its cost. Owens-Corning 6" or 3 1/2" fiberglas building insulation (R-19 or R-11 respectively) has the kind of acoustical properties desired, BUT the disadvantages to its use is that fine wood dust will impregnate the material, lower its absorption effectiveness, and create a fire or explosion hazard. Consider these disadvantages. If you and your insurance people feel that this material can be monitored for dust accumulation satisfactorily and can be periodically cleaned off somehow and/or replaced as acoustical and safety requirements dictate, then use it. A drawing is enclosed suggesting that a 2"x6" stud wall be constructed inside the enclosure to accommodate the material. A light 1/2 - 1 mil tedlar or mylar film sheet, as well as a mesh or screen could later be added to the grid work, if it becomes necessary to protect the material. A 2"x6" framework is recommended for either 6" or 3 1/2" material, since an added protective film is less degrading acoustically if it does not touch the fiberglas. Cost runs about $.30 per sq. ft. for the 6"x23" Kraft-backed roll. Install it with the insulation facing the planer; to do otherwise will seriously drop the absorption coefficients in needed frequencies from 500 Hertz up.

Upgrade the planer infeed operator's 2'x4' observation window. Remove the existing, poorly attached piece of Plexiglas. Clean up the window frame and install a piece of 1/4" laminated safety glass at the inside location where the old Plexiglas was. Seal it well with a rubberized caulk and reinstall the molding strip securely. Clean the window. The risk of breakage is probably greatest from the outside, so install a clean piece of clear 1/4" Plexiglas or Lexan at the outer window molding location. Seal well as before and secure with molding strips. All materials are available from PPG Industries, Inc., P. O. Box 3397, Station A, Savannah, GA 31413, phone 912-234-2286. Approximate costs per square foot are: glass - $3.90, Lexan - $8.94, Plexiglas - $4.58. (PPG in Macon has prices 10-30% lower on these items.) I believe I've seen a sheet of Plexiglas in the maintenance area behind the Chip-n-Saw mill. Also, you may find the existing Plexiglas window okay for reuse. See drawing.

In the above case, we will count on the sheet of glass to regain the acoustical integrity of this window. Lexan, while expensive, is a newer material by GE, which is said to be more scratch resistant than Plexiglas. It is not felt that the Lexan MR4000 coating is worth the additional cost. A protective screen could be put over either or both of these sheets, but easy access for cleaning would be necessary. Providing a small shelf at this location would give the infeed man a place to put wrenches, pry bars, glasses, etc., instead of against the window.

Other treatments presently being considered for the planer mill include a "silenced" tunnel to the planer enclosure, better door sealing, improved barriers at infeed/outfeed holes, a partial enclosure for the planer infeed mechanism, a "total" trim saw enclosure, and a barrier wall improvement at the hog.

The OSHA man had asked Ed about the possibility that the A-20 infeed man feed from the other side of the infeed conveyor from the breakdown. He probably saw that St. Regis, Lumber City, does this on their A-20. This would lower his levels some, but not help nearby workers. Besides, your infeeder needs to get to the mechanism a lot, as well as go into the enclosure. If, however, you think this is a feasible thing to do, let me know soon, as I'm looking at workable infeed mechanism enclosure designs now.

Lastly, I would like to be able to "educate" someone at your mill along the lines of noise control and just what is important. Perhaps as we get into implementing some things Sam Carter will be this person. I suppose that maintenance will do a lot of it. This will not only be necessary in implementation, but can, I think, be very cost effective for you on a long term basis - such as when monitoring enclosure degradation or attacking new problems in years to come. In other companies, I'm finding that most productive, mutually satisfying progress is made when there is one co-ordinating individual who I can communicate with who has some time, interest, and the management backup to be involved in noise work at the mill.

I will call you in a few days after you have had a chance to digest this long letter.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures

OPERATOR	CONDITIONS	Overall dBA Level	Approx. Protected Levels With Plugs Correctly Fitted		
			E-A-R	V-51R	Com-fit
Band Mill Edger	Operating	106	77	82	88
Band Mill Trim Saw	Operating	101	70.5	74.5	81.5
Planer Infeed	Feeding	109	78.5	84	91.5
Planer Outfeed/Grader	Operating	105.5	75.5	80	87
Planer Mill Trim Saw	Operating	97	67	72.5	79.5
Planer Technician	Inside Planer Enclosure - w/Lumber	125.4	95	100	107
C-n-S Trim Saw	Operating	99	67.5	72	78.5

The attenuation provided by each of the plugs looked at averaged approximately as below:

1.	E-A-R disposable	30 dBA
2.	Type V-51R	25 dBA
3.	Norton Com-fit	18.5 dBA
4.	Willson Sound Silencers	15 dBA

HEARING PROTECTION EVALUATION SHEET

COMPANY Continental

WORKER POSITION PLANER MILL TRIM SAW OP.

DATA DATE 10/19/79 BY

WORKER NAME

PROTECTION TYPE A: Willson Sd. Silencs

B: E.A.R ANSI S3.19-1974

C: Apex AFM-18 (V-51R type)

NOTES Fibre. Meth data S3.19-1974

A

								Overall	
Frequency, Hz	125	250	500	1K	2K	4K	8K	dB	dBA
Measured level, dB or [✓ dBA]	72-75	80-83	87-90	90-93	89-91	84-88	79-84		97
Minus Mean Attn., dB	-20	-23	-24	-26	-32	-42	-35		
Plus 2 x Std. Dev., dB	14.2	12.0	12.8	11.4	8.8	10.6	13.2		
Protected level, dB or dBA	69.2	72	78.8	78.4	67.8	56.6	62.2		82.
Plus A-wgt., if req'd.									
Protected level, dB or [✓ dBA]									

B

								Overall	
Frequency, Hz	125	250	500	1K	2K	4K	8K	dB	dBA
Measured level, dB or [✓ dBA]	75	83	90	93	91	88	84		97
Minus Mean Attn., dB	-29.6	-31.3	-34.1	-34.0	-35.5	-41.9	-39.3		
Plus 2 x Std. Dev., dB	6.4	6.6	4.2	4.6	5.4	4.2	5.6		
Protected level, dB or dBA	51.8	58.3	60.1	63.6	60.9	50.3	50.3		67
Plus A-wgt., if req'd.									
Protected level, dB or [✓ dBA]									

C

								Overall	
Frequency, Hz	125	250	500	1K	2K	4K	8K	dB	dBA
Measured level, dB or [✓ dBA]	75	83	90	93	91	88	84		97
Minus Mean Attn., dB	-20.4	-23.2	-25.4	-29	-34.9	-38.6	-38.7		
Plus 2 x Std. Dev., dB	4.4	4.4	4.6	3.6	4.0	4.6	5.6		
Protected level, dB or dBA	59	64.2	69.2	67.6	60.1	54	50.9		72.5
Plus A-wgt., if req'd.									
Protected level, dB or [✓ dBA]									

HEARING PROTECTION EVALUATION SHEET

COMPANY ____________ WORKER POSITION Planer mill- Trim saw op.

DATA DATE ____________ BY ________ WORKER NAME ____________

PROTECTION TYPE A: Norton 4565 or 4561 (foam)

B: EAR 315 (foam) ☑ C: Norton Com-fit (not in stock)

NOTES Z24.22-1957

A

								Overall	
Frequency, Hz	125	250	500	1K	2K	4K	8K	dB	dBA
Measured level, dB or [✓ dBA]	75	83	90	93	91	88	84		97
Minus Mean Attn., dB	-24.5	-28.7	-32.1	-34	-38.4	-47.1	-46.2		
Plus 2 x Std. Dev., dB	9.4	8.2	7.0	6.6	4.6	5.0	5.4		
Protected level, dB or [✓ dBA]	59.9	62.5	64.9	65.6	57.2	45.9	43.2		70
Plus A-wgt., if req'd.									
Protected level, dB or dBA									

B

								Overall	
Frequency, Hz	125	250	500	1K	2K	4K	8K	dB	dBA
Measured level, dB or [✓ dBA]	75	83	90	93	91	88	84		97
Minus Mean Attn., dB	-25	-25	-25	-26	-35	-40	-37		
Plus 2 x Std. Dev., dB	10.4	12.6	9.6	6.2	11.2	11.4	12.4		
Protected level, dB or [✓ dBA]	60.4	70.6	74.6	73.2	67.2	59.4	59.4		78
Plus A-wgt., if req'd.									
Protected level, dB or dBA									

C

								Overall	
Frequency, Hz	125	250	500	1K	2K	4K	8K	dB	dBA
Measured level, dB or [✓ dBA]	75	83	90	93	91	88	84		97
Minus Mean Attn., dB	-26.8	-25.6	-25.6	-27.5	-35.9	-40.8	-40.8		
Plus 2 x Std. Dev., dB	13.8	11.8	12.8	9.0	13.2	17.4	11.2		
Protected level, dB or [✓ dBA]	62	69.2	77.2	74.5	68.3	64.6	54.4		79.5
Plus A-wgt., if req'd.									
Protected level, dB or dBA									

Source: Industrial Hygiene Field Operations Manual, U.S.D.O.L

(4) Existing noise and/or vibration controls.

(5) Source(s) and characteristics of the noise (i.e. fan noise--discrete and broad band components, continuous or noncontinuous).

(6) Feasible engineering controls.

c. <u>Building Data</u>.

(1) Size and shape of the room.

(2) Layout of equipment, work stations and break areas.

(3) Surface materials (e.g., ceiling/steel; walls/cinder block; floor/concrete).

(4) Existing acoustical treatment.

(5) Feasible acoustical treatment (if known).

(6) Noise from other sources (spill-over noise).

(7) Presence of barriers, enclosures, etc.

d. <u>Employer Data</u>.

(1) What has been done to control the noise (e.g., consultants, plant noise monitoring, controls implemented, etc.)?

(2) What is planned in the future?

(3) Are administrative controls utilized? How are they enforced?

(4) <u>Hearing Conservation Program</u>.

(a) <u>Use of Hearing Protection</u>.

<u>1</u> Is use mandatory and enforced above a noise dose of 50%? 100%?

<u>2</u> Has correct use been demonstrated to all employees exposed to noise in excess of the standard?

<u>3</u> Does the company supply hearing protection? What is supplied? Who maintains it?

(b) <u>Monitoring Audiometry</u>.

<u>1</u> Are baseline audiograms obtained after 16 hours of quiet?

<u>2</u> How often are audiometric tests performed on noise-exposed employees?

<u>3</u> Is the audiometer calibrated and are the tests performed by trained audiometric technicians?

<u>4</u> How is the audiometric data used?

<u>a</u> Are employees with abnormal audiograms retested after 16 hours of quiet and/or referred to an otolaryngologist or qualified physician?

<u>b</u> Are audiograms used to biologically monitor the effectiveness of the hearing protection?

2. <u>Evaluation of Hearing Protection</u>.

a. OSHA standards place primary emphasis on engineering and administrative controls in light of the inherent deficiencies of hearing protection. However, the Industrial Hygienist shall determine the effectiveness of the hearing protection when used as an interim measure until engineering or administrative controls have corrected the hazard, or where controls have been determined to be infeasible.

Source: Industrial Hygiene Field Operations Manual, U.S.D.O.L.

b. For compliance purposes, a minimally effective hearing conservation program consists of the following items:

(1) A baseline audiogram for all employees exposed to noise levels equal to or in excess of the standard.

(2) Periodic audiograms for each overexposed employee.

(3) Analysis of audiogram results with retesting and/or referral to an otolaryngologist or qualified physician when a significant threshold shift occurs. A significant shift will be considered to be equal to or greater than 20 dB at any test frequency.

NOTE: If hearing loss has been determined to be occupationally related, the loss is required to be recorded on the OSHA Form 200.

(4) Where insert ear plugs or custom-molded devices other than self-fitted, malleable plugs are utilized, individual employee fitting shall be conducted by a trained person, and employees shall be instructed in the care and use of the devices.

c. Audiometric testing guidelines are detailed in ANSI S3.6-1969 "Specifications for Audiometers". The audiometric booth guidelines are contained in ANSI S3.1-1960 "Criteria for Background Noise in Audiometer Rooms". Where the employer's audiometer testing program contains deficiencies (compared with ANSI S3.6 and S3.1) to the extent that an employee is placed at an increased risk of hearing impairment, the Industrial Hygienist shall consult with the ARA for Technical Support.

d. Caution must be applied when citing for the hearing conservation program. The intent of the citation should be to establish a good, workable program. Deficiencies other than those just outlined above shall be brought to the attention of the employer. If the program is not in compliance, the resulting citation shall state the deficiencies with particularity.

EQUIVALENT TASK LEVELS

Task No.	Task Description	Task Levels 90 dBA Cutoff	85 dBA Cutoff
01	Break Room/Lunch Room	<90	<85
02	Rest Room	<90	<85
03	Stick Man, P1, Near Breakdown Working	95.8	95.8
04			
05			
06			
07	Planer Infeed Lift Operator, P2, Cycle	<90	87.4
08	Planer Infeed, P3, Feeding	104.3	104.3
09			
10	Planer Infeed, P3, Idle	<90	88.9
11	Grader (Nearest Planer Outfeed), P4, Grading	96.7	96.7
12	Grader (Nearest Planer Outfeed), P4, Idle	<90	87.2
13			
14	Grader (Away From Planer Outfeed), P5, Grading	94.0	94.0
15	Grader (Away From Planer Outfeed) P5, Idle	<90	<85
16			
17	Planer Technician, P6, Inside Grinding Room	<90	<85
18	Planer Technician, P6, Inside Planer Enc, w/Lumber	111.4	111.4
19	Planer Technician, P6, Inside Planer Enc., Running w/o/Lumber	101.3	101.3
20	Planer Mill Trim Saw Op., P7, Cutting	95.3	95.3
21	Planer Mill Trim Saw Op., P7, Idle	< 90	88.7
22			
23	Dry Puller (Nearest Trim), P8, Operating	93.2	93.4
24	Dry Puller (Nearest Trim), P8, Idle	89.9≅90	90.9
25			
26			
27	Dry Puller, P9-12, Operating	< 90	89.4
28	Dry Puller, P9-12, Idle	<90	87.9
29			

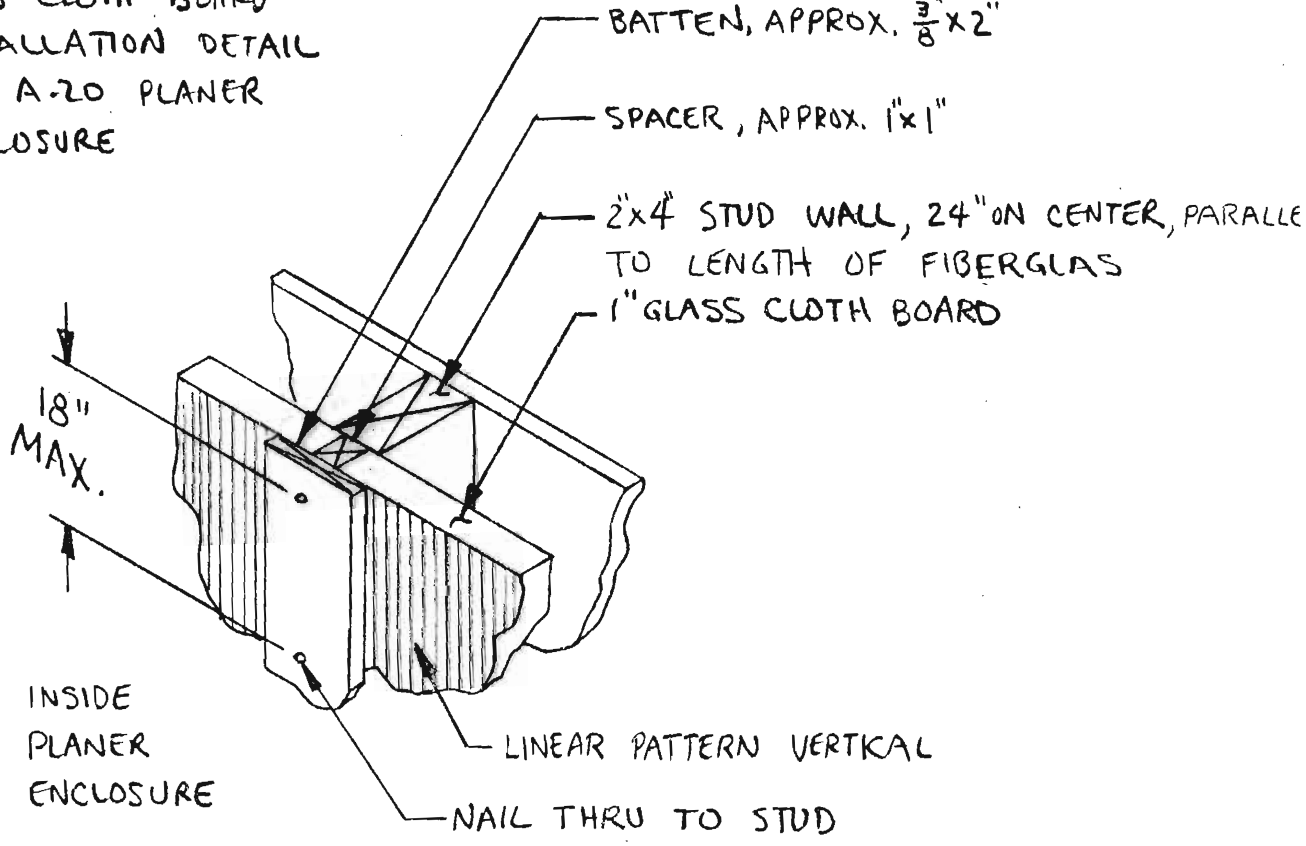
EQUIVALENT TASK LEVELS

Task No.	Task Description	Task Levels 90 dBA Cutoff	 85 dBA Cutoff
30	Package Man, P13, Operating	<90	87.1
31	Package Man, P13, Idle, Nearest Puller	<90	85
32	Ticket Man, P14, Banding	<90	87.7
33	Ticket Man, P14, Marking	<90	<85
34			
35	Planer Outfeed Lift Op., P15 & P16, Cycle	<90	86.6
36	RR Car Tie Down, P17-18, Tieing	<90	<85
37			
38	Round Table Man, P19, p/u at Table	95.6	95.6
39	Round Table Man, P15, p/u at Trim Saw	95.6	95.6
40			
41			
42	Planer Mill Sup., P21, Office in Trailer	<90	<85
43	Outside Dry Kilns at Outfeed End	<90	<85
44	Planer Mill Maintenance Man, M12, at Work Table	96.5	96.5
45	Stick Man, P1, p/u at Conveyor	<90	<85
46	CNS Operator, C6, Cutting (in Booth)	100.8	100.8
47	CNS Edger Op., C7, Cutting	<90	86.0
48	CNS Trim Saw Op., C8, Cutting	100.3	100.3
49	CNS Trim Saw Op. Helper, C9, Cutting	98.9	98.9
50	CNS Operator, C6, Idle (in Booth)	<90	<85
51	CNS Edger Op., C7, Cleanup and Idle	94.9	94.9
52	CNS Trim Saw Op., C8, Idle	98.0	98.0
53	CNS Trim Saw Op. Helper, C9, Idle	98.4	98.4
54	No. 1 Tipple Op., C10, Operating	96.8	96.9
55	No. 2 Tipple Op., C11, Operating	92.1	92.7
56	Band Mill Edger Op. Helper, B2, Idle	92.0	92.0
57	Band Mill Edger Op., B3, Idle	92.0	92.0
58	No. 2 Tipple Op., C10, and Helper, C11, Idle	<90	<85
59			

EQUIVALENT TASK LEVELS

Task No.	Task Description	Task Levels 90 dBA Cutoff	85 dBA Cutoff
60	Green Sort Line (Grd. Nearest BM & CNS), C14		
61	Millbright Area, P6, Operating	93.3	93.3
62	Stacker Op., S1, Operating	<90	89.5
63	Stacker Op., S1, Idle	<90	<85
64	Stacker Transfer Op., S2, at Conveyor	<90	88.2
65			
66			
67	Stick Layers, S3, Operating	<90	85.3
68	Stick Layers, S3, Idle	<90	<85
69	No. 1 Kickout Op., C4, Normal Op.	91.4	93.0
70	No. 1 Slasher, C3, Idle in Booth	<90	<85
71	No. 1 Slasher, C3, Operating	<90	<85
72	No. 2 Slasher, C5, Operating	<90	<85
73	No. 2 Slasher, C5, Idle in Booth	<90	<85
74	Stick Making Machine, Infeed, Operating	98.1	98.1
75	Stick Making Machine, Outfeed, Operating	98.6	98.6
76	Lift Op., Green Lumber to Stacker, C16, Cycle	<90	
77	Jib Crane Op., C1, Operating & Idle	<90	<85
78	Band Mill Edger Op., B3, Operating	95.6	95.6
79	Headrig Operator, B1, Cutting in Booth	90.0	
80	Headrig Operator, B1, Idle in Booth	<90	

1" OWENS-CORNING GLASS CLOTH BOARD INSTALLATION DETAIL FOR A-20 PLANER ENCLOSURE

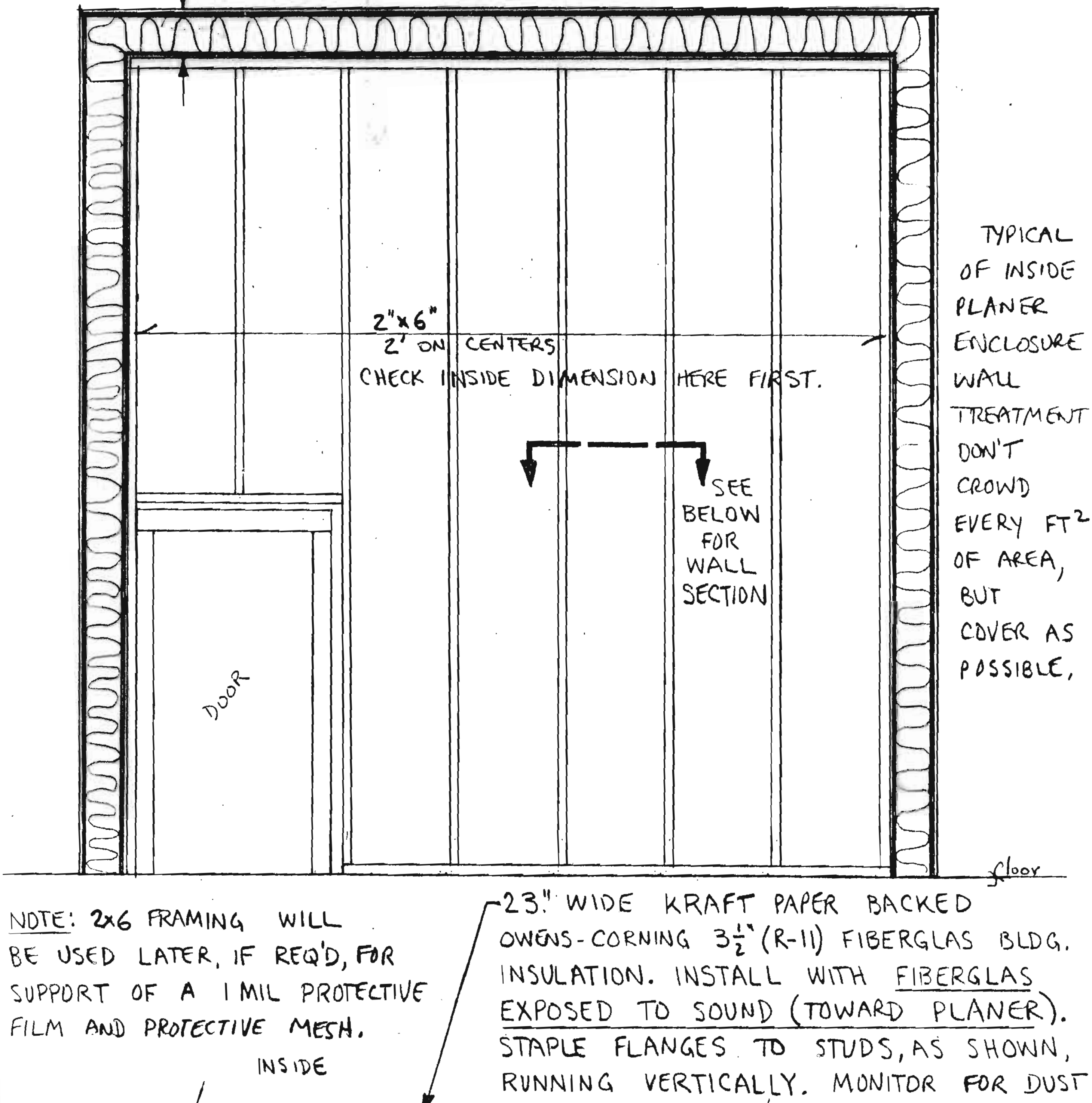


MOUNTING DISTANCE	ABSORPTION COEFFICIENTS						NRC
	Freq. 125	250	500	1K	2K	4K	
ON WALL (#4)	.03	.17	.63	.87	.96	.96	.65
1" SPACE	.04	.26	.78	.99	.99	.98	.75
2" SPACE	.17	.40	.94	.99	.97	.99	.85
3" SPACE	.19	.53	.99	.99	.92	.99	.85
5" SPACE	.41	.73	.99	.98	.94	.97	.90

ABOVE CHART SHOWS EFFECT OF SPACING THIS MATERIAL OUT FROM WALL. THE HIGHER THE COEFICIENTS OR THE NOISE REDUCTION COEFFICIENTS THE BETTER, ESPECIALLY OVER 500 HZ, IN THIS APPLICATION.

A20 PLANER ENCLOSURE WALL VIEW

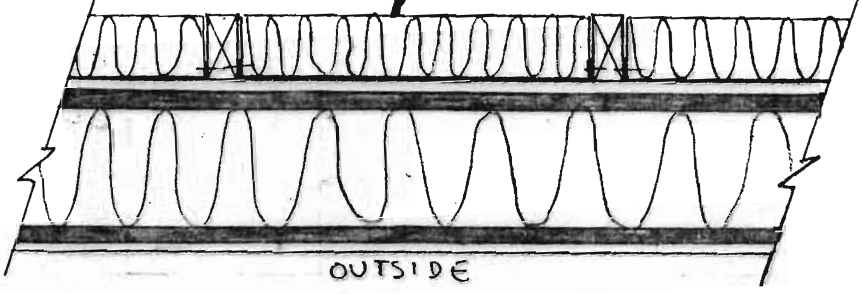
EXISTING ENCLOSURE WALL
THOUGHT TO BE AN 8" "STUD" WALL SURFACED WITH
3/4" BLACK CELOTEX & 1/2" PLYWOOD EA. SIDE, F'GLASS BATTS INSI



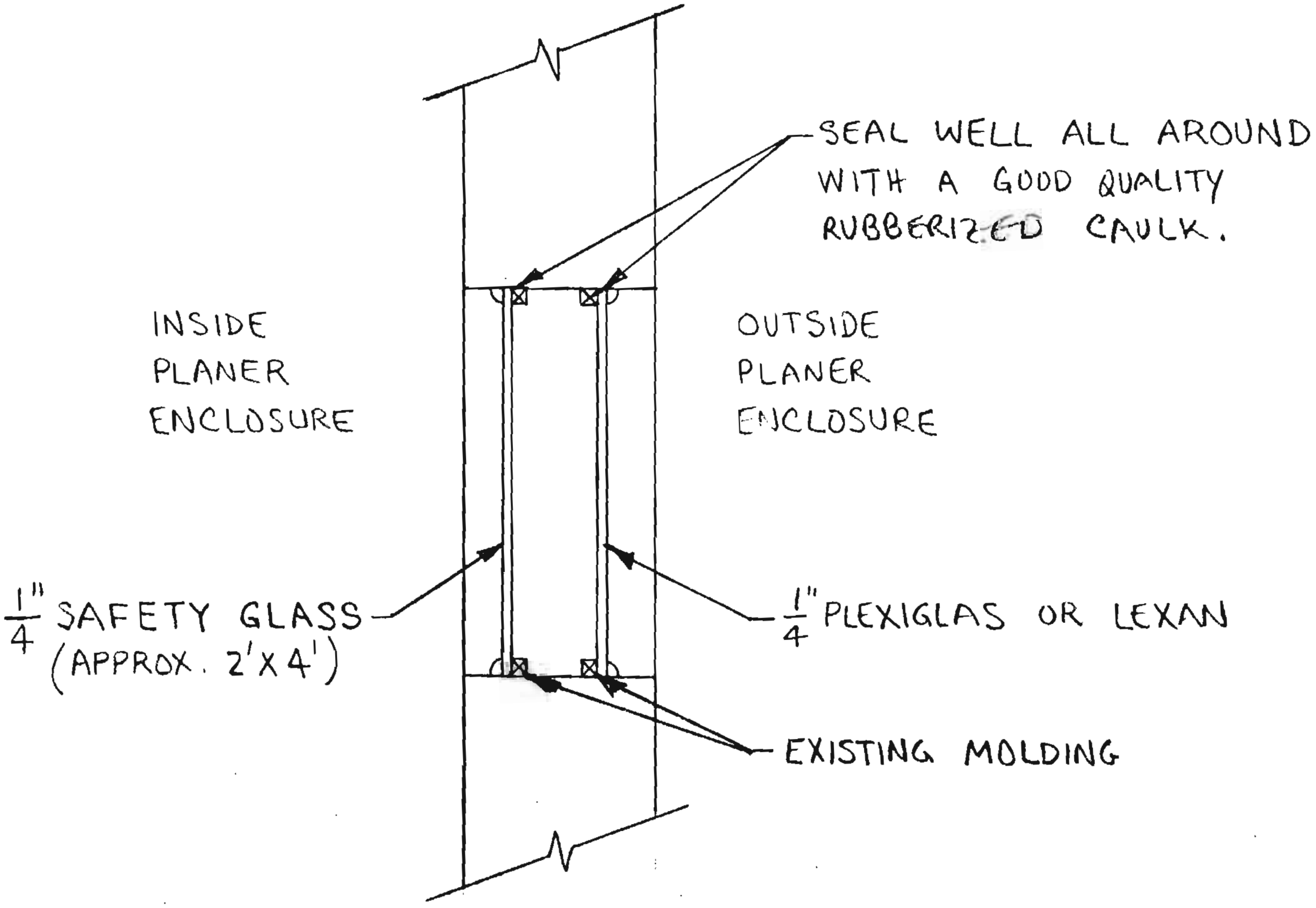
TYPICAL OF INSIDE PLANER ENCLOSURE WALL TREATMENT. DON'T CROWD EVERY FT^2 OF AREA, BUT COVER AS POSSIBLE,

NOTE: 2x6 FRAMING WILL BE USED LATER, IF REQ'D, FOR SUPPORT OF A 1 MIL PROTECTIVE FILM AND PROTECTIVE MESH.

23" WIDE KRAFT PAPER BACKED OWENS-CORNING 3½" (R-11) FIBERGLAS BLDG. INSULATION. INSTALL WITH <u>FIBERGLAS EXPOSED TO SOUND (TOWARD PLANER)</u>. STAPLE FLANGES TO STUDS, AS SHOWN, RUNNING VERTICALLY. MONITOR FOR DUST ACCUMULATION.



SCALE: NTS
4/30/80 GHL



A20 PLANER INFEED
OBSERVATION WINDOW
SECTION

SCALE: NTS
5/2/80 GHL

GT EES

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION
ATLANTA, GEORGIA 30332

ENGINEERING EXTENSION LABORATORY
Central Georgia Area Office
1818 Forsyth Street
Suite 112
P. O. Box 5105
Macon, Georgia 31208

May 15, 1980

Mr. Jerome B. Rogers
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Here are three copies of the "idea sketches" for the Salem A-20 infeed mechanism enclosure.

As we discussed, it is not final and should be looked at critically - especially with regard to:

1.) Everyday production practicality and "usability".

2.) Long-term sturdiness and ability to withstand everyday sawmill wear-and-tear.

3.) Cost, ease of construction.

4.) The back side - should it be larger - say as a walk-in for easier access to motors, belts, etc.? I think the guards could come off with this in place and shut up tight.

The more input the better, from the worker up!

I enjoyed talking with you yesterday. It was a very productive day for me.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures

GTEES

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Central Georgia Area Office
1818 Forsyth Street
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P. O. Box 5105
Macon, Georgia 31208

May 15, 1980

Ms. Connie Hanson
Purchasing Agent
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Connie:

As you requested yesterday, listed below are the areas or operating stations where one or more air exhausts need quieting; approximately in order of their impact on the worker's noise exposure. In some cases this is a primary source and if it is eliminated, could result in no hearing protection being required.

1. Chip-n-saw mill edger operator. Severely impacted by air exhaust noise almost on him.

2. No. 1 kickout booth, below it. Several exhausts in this area have silencers, so maybe its just a matter of maintenance attention. The valve is made by Modernair Corporation.

3. Under No. 1 and 2 tipples, 1 or 2 locations. This affects the tipple operators, as well as the sorters on the ground.

4. Band mill edger. One or two locations.

5. Stacker building. 1 or 2 exhausts under the conveyor.

6. Planer mill bander. Signode seal feed banding machine exhaust (Model AMP 34, Size 3/4, Signode Corporation, Chicago). I am checking into this one with Signode.

7. I had noted an air exhaust coming from near the jib crane impacting the band mill. This may or may not be the same on as at the No. 1 kickout.

8. I think there is air exhaust at the planer infeed conveyor, but I'm not certain. It's not evident now because of other more predominant sources.

Information on various types of silencers available is enclosed.

Also, here is your copy of the safety rules back.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures

cc: Mr. Jerome B. Rogers

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ENGINEERING EXTENSION LABORATORY
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P. O. Box 5105
Macon, Georgia 31208

August 11, 1980

Mr. Jerome B. Rogers
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Attached are copies of sketches and other forms of recommendations for noise control in your planer mill. Specifically, they are:

1. Drawing of A-20 planer infeed shutter.

2. Drawing of A-20 planer lined outfeed tunnel with curtains.

3. Listing of seven items for upgrading the acoustical integrity of the infeed side of the planer mill trim saw.

4. Drawing of typical acoustical absorption panel as mentioned in item 3 listing.

5. Drawing of typical absorption panel mounting details as mentioned in item 3 listing.

Let me stress that, while I am recommending what I think are reasonable measures, please do not hesitate to question/discuss the practicality or advisability of items in light of your experience around a sawmill.

I look forward to working with Reimer Bland in the implementation of these and other noise control items.

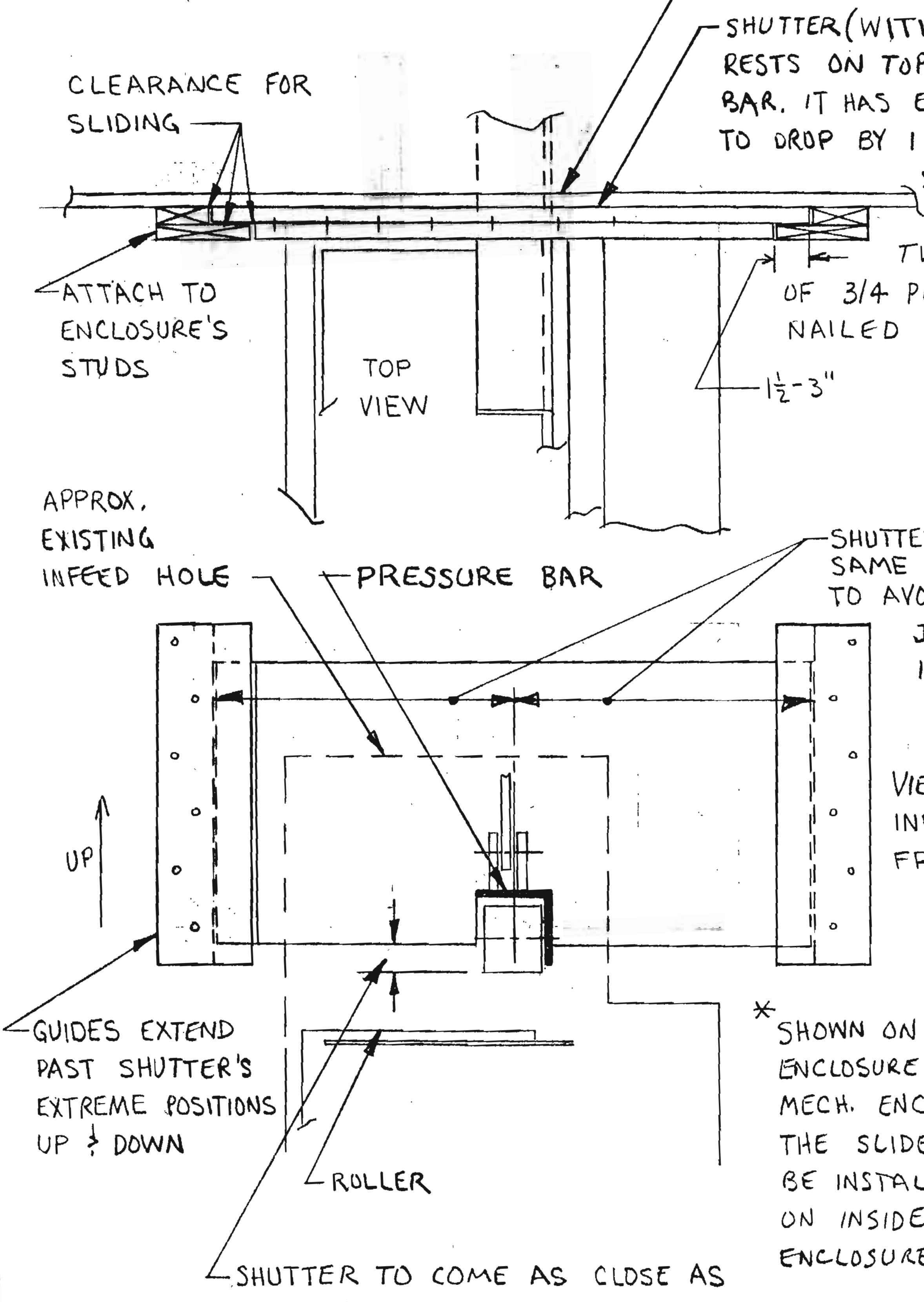
Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures
cc: Mr. Sherman L. Dudley

A-20 PLANER INFEED SHUTTER

*SEE NOTE



SHUTTER (WITH DOUBLER) RESTS ON TOP OF PRESSUR BAR. IT HAS ENOUGH WEIGH TO DROP BY ITSELF + SLIDES FREEL MADE FROM TWO PIECES OF 3/4 PLYWOOD NAILED TOGETHER.

SHUTTER WIDTH TO BE SAME L+R OF BAR TO AVOID SHUTTER JAMMING AS IT SLIDES.

GUIDES EXTEND PAST SHUTTER'S EXTREME POSITIONS UP & DOWN

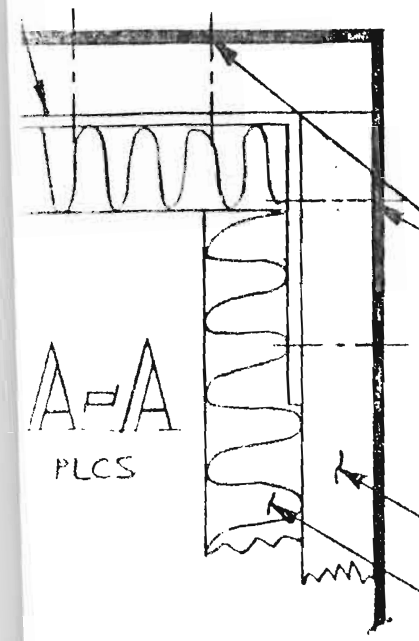
SHUTTER TO COME AS CLOSE AS POSSIBLE TO ROLLER BOTTOM (LUMBER TOP)

*SHOWN ON OUTSIDE OF ENCLOSURE. IF INFEED MECH. ENC. IS INSTALLED THE SLIDE WOULD BEST BE INSTALLED (SIMILARLY ON INSIDE OF PLANER ENCLOSURE (AT INFEED)

SCALE: NTS
5-7-80 GHL

A-20 PLANER
LINED OUTFEED TUNNEL WITH CURTAINS

$\frac{1}{2} \times 3\frac{1}{2} \times \frac{3}{4}$ WIDE
FLAT CORNER BRACES
8 (MINIMUM) REQ'D



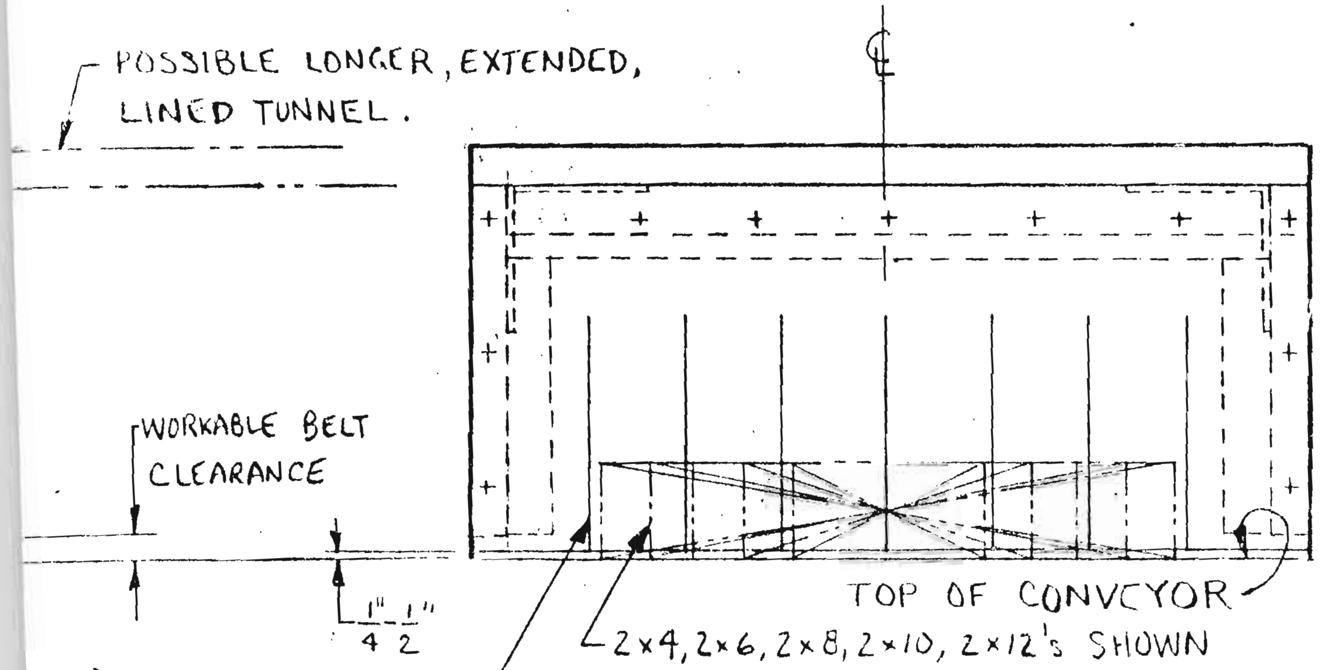
C'S'K SCREWS FROM OUTER SURFACE OF PLYWOOD. USE RD HD SCREWS ON BRACES AT ENDS OF TUNNEL TO GO THRU SHEET METAL, TOO, TO SECURE TUNNEL.

3/4" PLYWOOD

OWENS-CORNING FIBERGLAS, CLOTH-FACED CEILING BOARD, 1", PAINTED LINEAR. INSTALL WITH "PAINTED" SURFACE TOWARD INSIDE.

URTAINS
EXIT

POSSIBLE LONGER, EXTENDED, LINED TUNNEL.



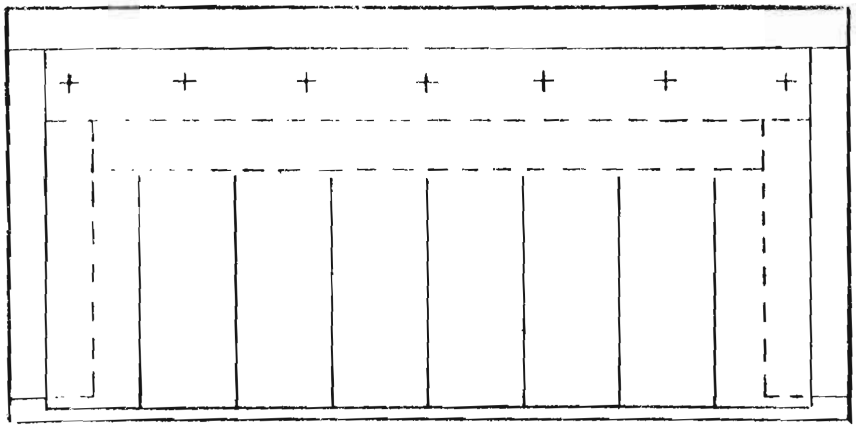
TOP OF CONVEYOR

2×4, 2×6, 2×8, 2×10, 2×12's SHOWN

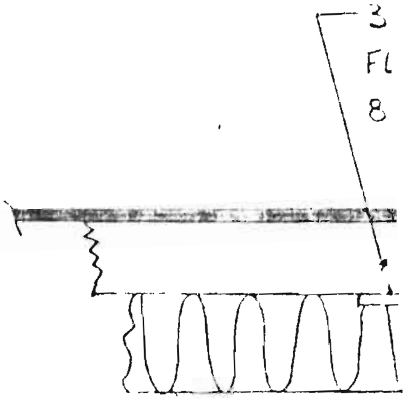
APPROX. 2" SLIT SPACING FROM CENTER OF PLANER OUTLET ℄ AS SHOWN CLEARING 3 SIZES (ESPECIALLY 2×4'S)

TO
OOD SIDES

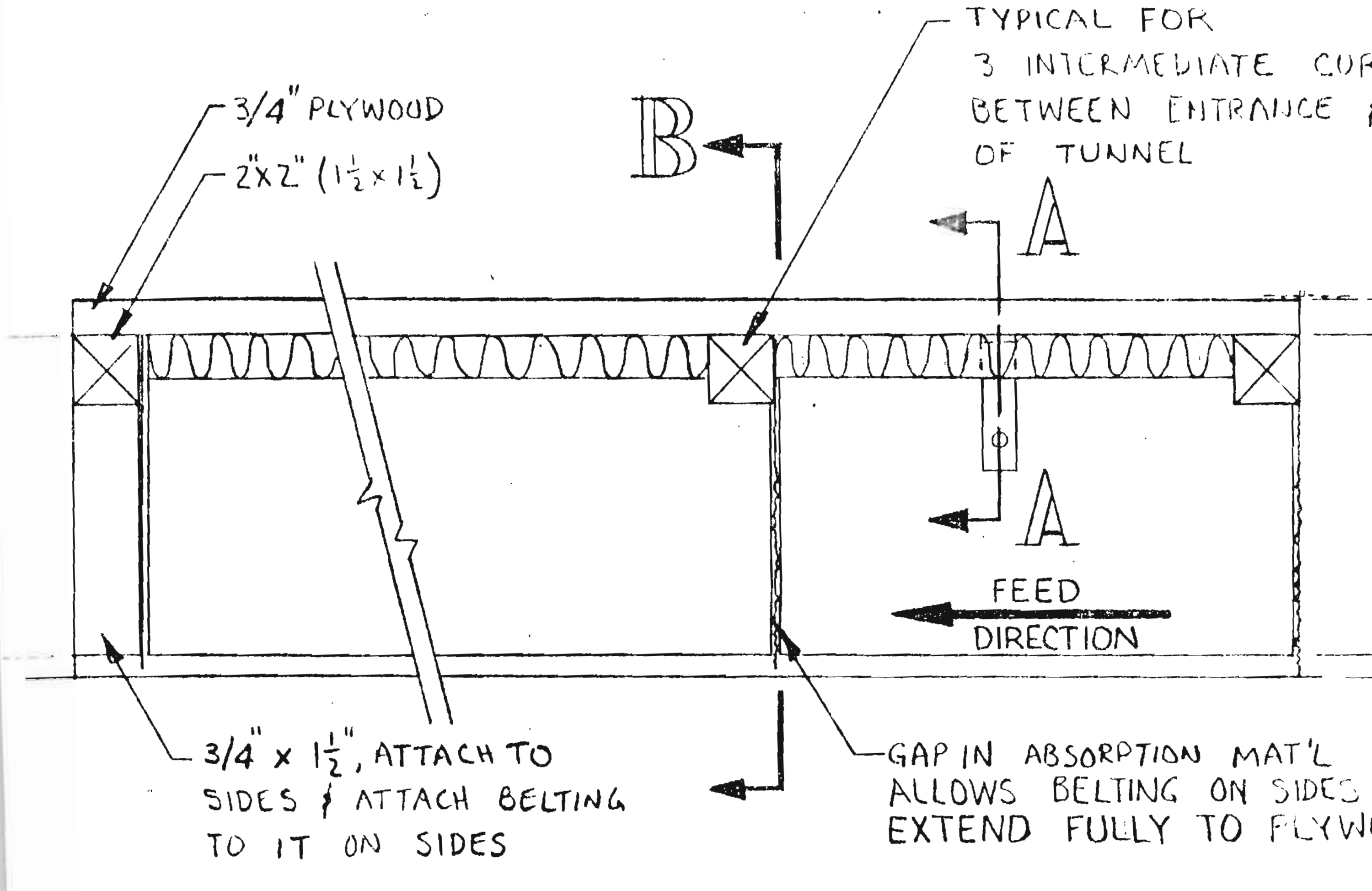
Lee
7/8



VIEW B
TYPICAL 3 PLCS



SECTION A
TYPICAL 4 P



Recommendations for upgrading of the acoustical integrity of the infeed side of the planer mill trim (Irvington-Moore):

1. Install blank steel continuous (or piano type) heavy duty hinges to the existing hinged steel panels which are hanging vertically on the infeed side of the planer mill trim saw. This will necessitate assuring that these panels are not bent, but more nearly flat.

2. Weld two lengths of unequal leg steel angles onto each separate panel. These angles (2½ x 1½) must be parallel and spaced to accept absorption panels which will slide into place between them. Additional short lengths of the same angle are used as support and may be installed first as locators for the longer angles which will run horizontally. Spacings and legs should accomodate the panels described elsewhere.

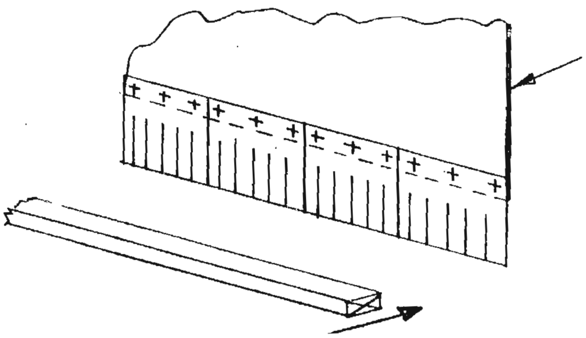
3. Cut pieces of 3/4" plywood to appropriate rectangular dimensions. Border them completely on one side with 2" x 2" pine material, attaching well with either nails or wood screws.

4. Using large headed roofer's nails (as used to attach felt) (or other means) attach the recommended sound absorbing material to the plywood within the 2 x 2 border. A snug fit is good. The white side should face out.

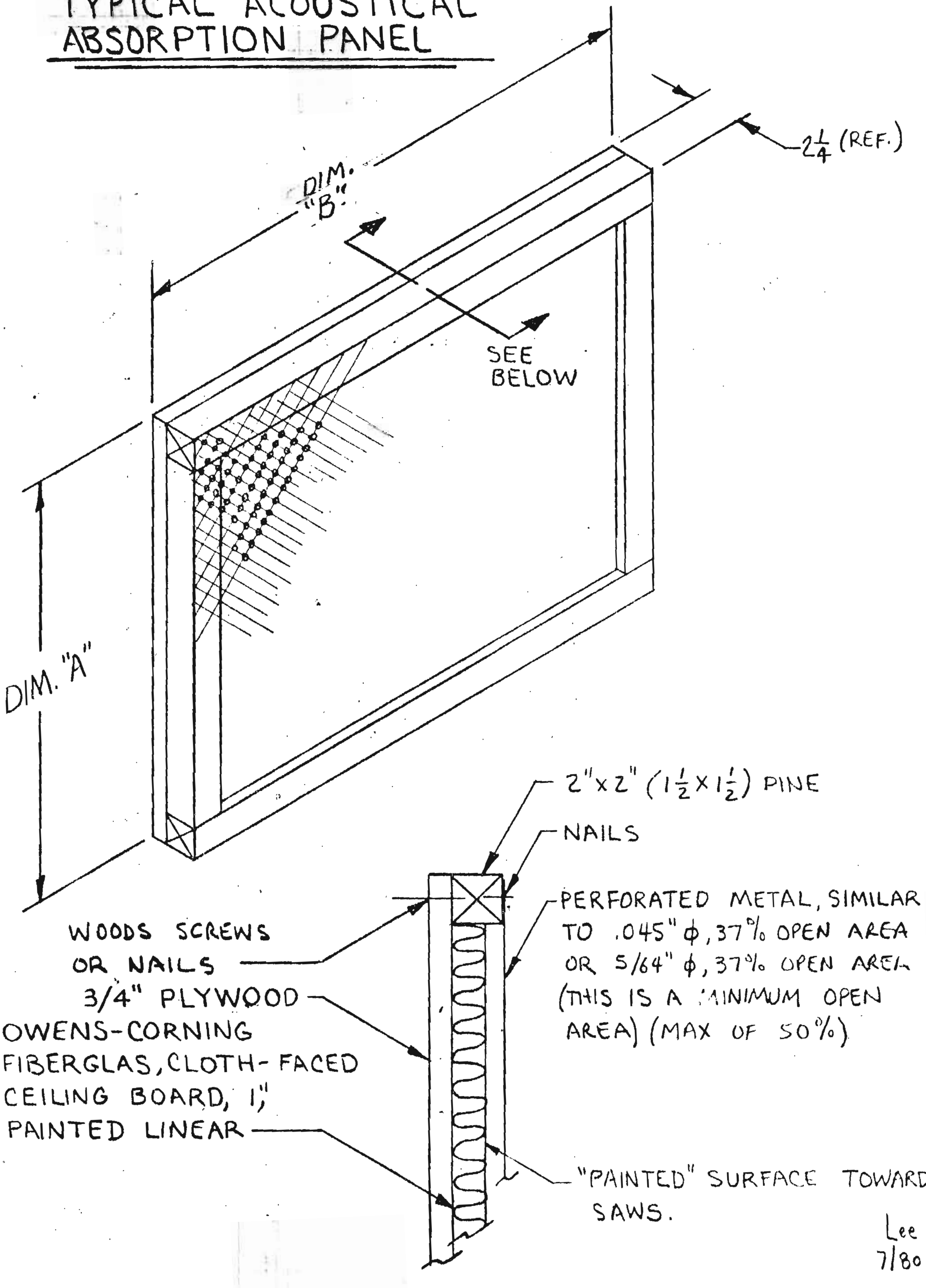
5. To the top of the 2 x 2 border, attach the recommended perforated metal. This material is intended to slow down the deposit of dust on the sound absorbing material.

6. If additional protection (as from thrown blocks) is deemed necessary, add expanded metal accross in front of the absorption material, welding it to the small legs of the angles.

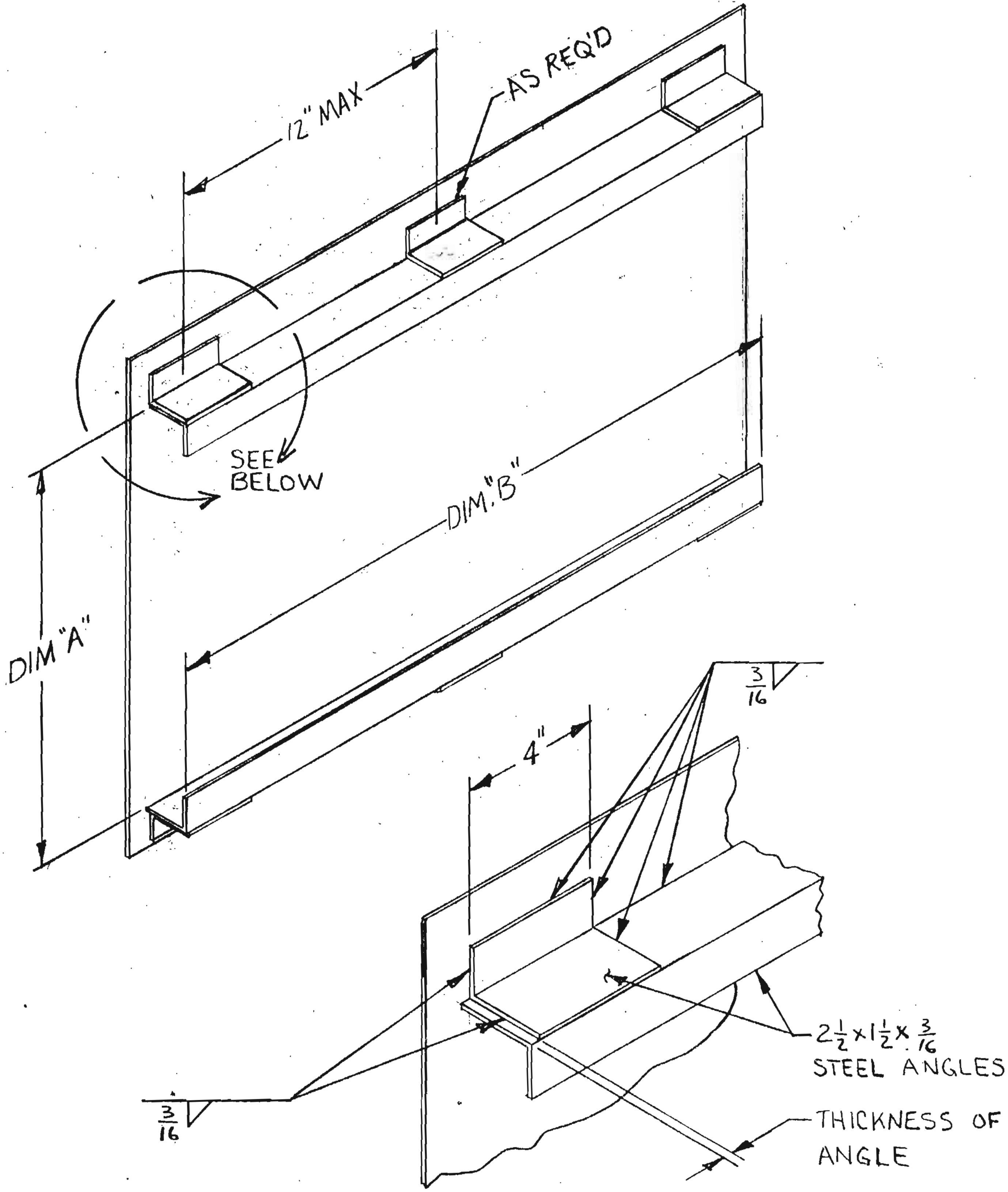
7. Old conveyor belting is an available and effective means of minimizing infeed or outfeed hole areas in enclosures. The heavier the belting in pounds per square foot the better. Obtain a strip of belting which will be wide enough to cover the notches in the lower portions of the steel panels on the infeed side of the trim saw as well as extend down to about half the depth of a 2 x 4 as it runs through. Cut the strip into 1' lengths. Slit these 1' lengths every 2", maybe using a band saw, for about half the width of the piece. Install the 1' sections side by side in at least three places on each 1' section with 1" edge distances. Install on the side of the steel panels toward the planer (not toward the saws). The purpose of the 1' lengths is to allow easier replacement of small torn or pulled-off sections without replacement of the entire length of belting. The slits provide more flexibility of the belting to eliminate any hang-up problems.



TYPICAL ACOUSTICAL ABSORPTION PANEL



TYPICAL ABSORPTION PANEL MOUNTING DETAILS



Lee
7/80

GTEES

Georgia Institute of Technology
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ATLANTA, GEORGIA 30332

ENGINEERING EXTENSION LABORATORY
Central Georgia Area Office
1818 Forsyth Street
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P. O. Box 5105
Macon, Georgia 31208

August 15, 1980

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

As you requested, enclosed are sketches indicating those "high risk" noise area workers I would suggest for audiometric testing.

As you know, the baseline audiogram is for "all employees exposed to noise levels equal to or in excess of the standards." This includes those who equal or exceed 100% doses. (That is to say - don't fix your attention on 90 dBA, but on doses. If a man is only exposed to 100 dBA for five minutes, and the rest of the day he is under 90 dBA, then he would not be in excess of the standard, even though he was exposed to levels over 90 dBA.)

The people indicated for testing are those who now appear to me to be getting either over 100% or borderline 100% exposures per the 90 dBA cutoff law.

Maintenance and cleanup peoples' exposures, I have not generally addressed, as you know, although you will note the maintenance man in the planer mill (in citation) and some cleanup people mentioned.

The man near the planer mill hog amd trim saw (although I have not done any exposures since he is not your employee) should be tested at his employer's expense. I will be glad to call this employer if you like.

Note that the plant superintendent and his supervisors, as well, are suggested for testing.

No one in the stacker department needs testing, based on my recordings.

I would suggest that any new employees to work in these "high risk" areas be tested, too, until such time as controls eliminate the need.

Please recall the suggestion from the OSHA field operations manual that sixteen hours of quiet time expire immediately prior to testing. I think that proper plug usage can suffice here if necessary, prior to testing. Also, copies of the audiometric test records should be maintained in your local offices for documentation.

In reality, baseline audiograms are used for future comparison to periodic audiograms. This is their intended use - as monitors for an effective hearing conservation program where plugs are required. I would hope that it would be decided to include periodic testing in your plans at some future date.

Mr. Bland and I had a good day, I thought, as we got to know one another and discuss control requirements and possibilities in most areas, particularly those in the planer mill area as the first area of attack.

Please do not hesitate to call me if you have any questions about the enclosed.

Sincerely,

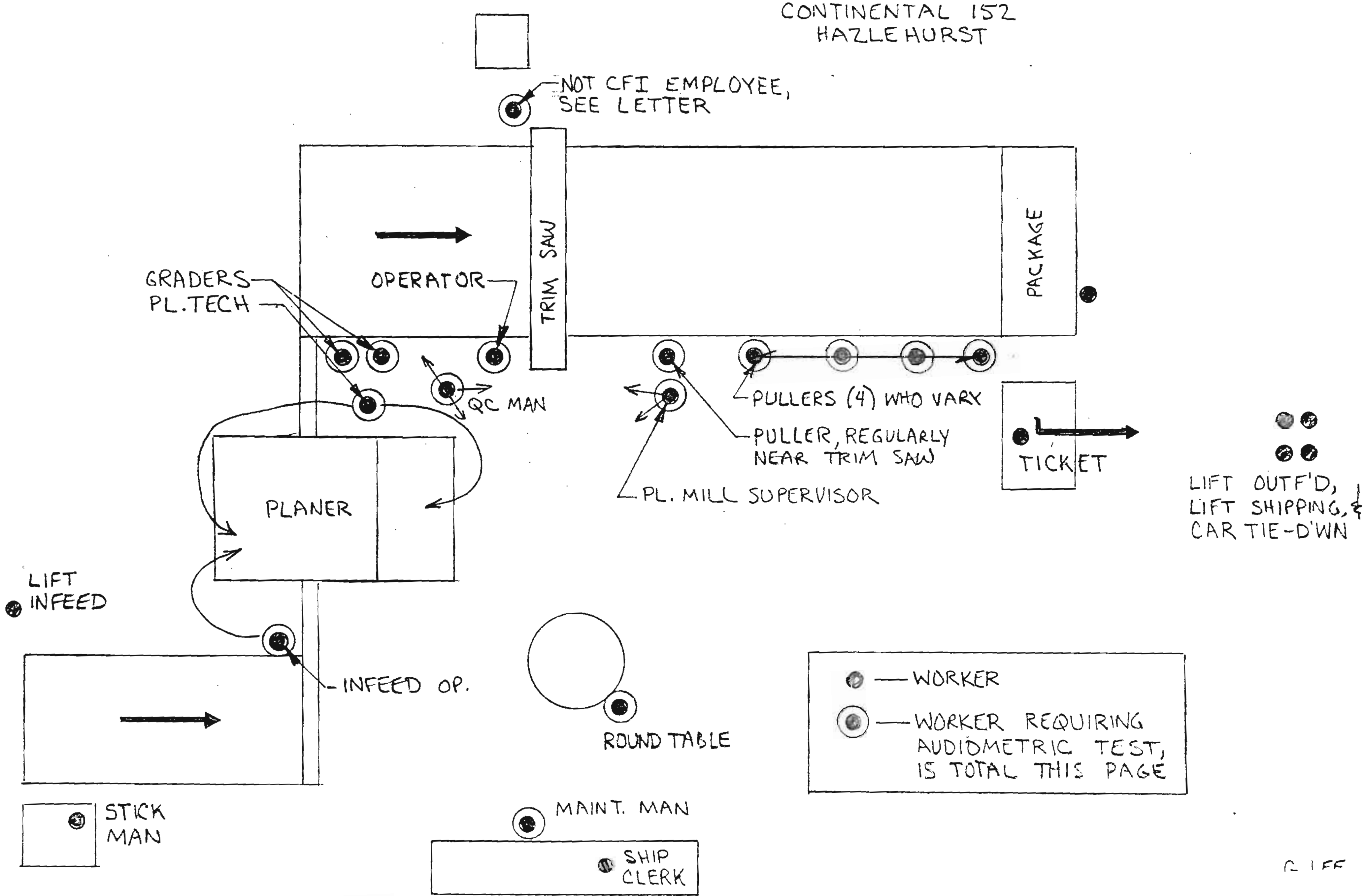
George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures
cc: Mr. Reimer Bland
Mr. Sherman L. Dudley

+ Jerome
+ Allen Lane (maint.)
X Emory Grey ?

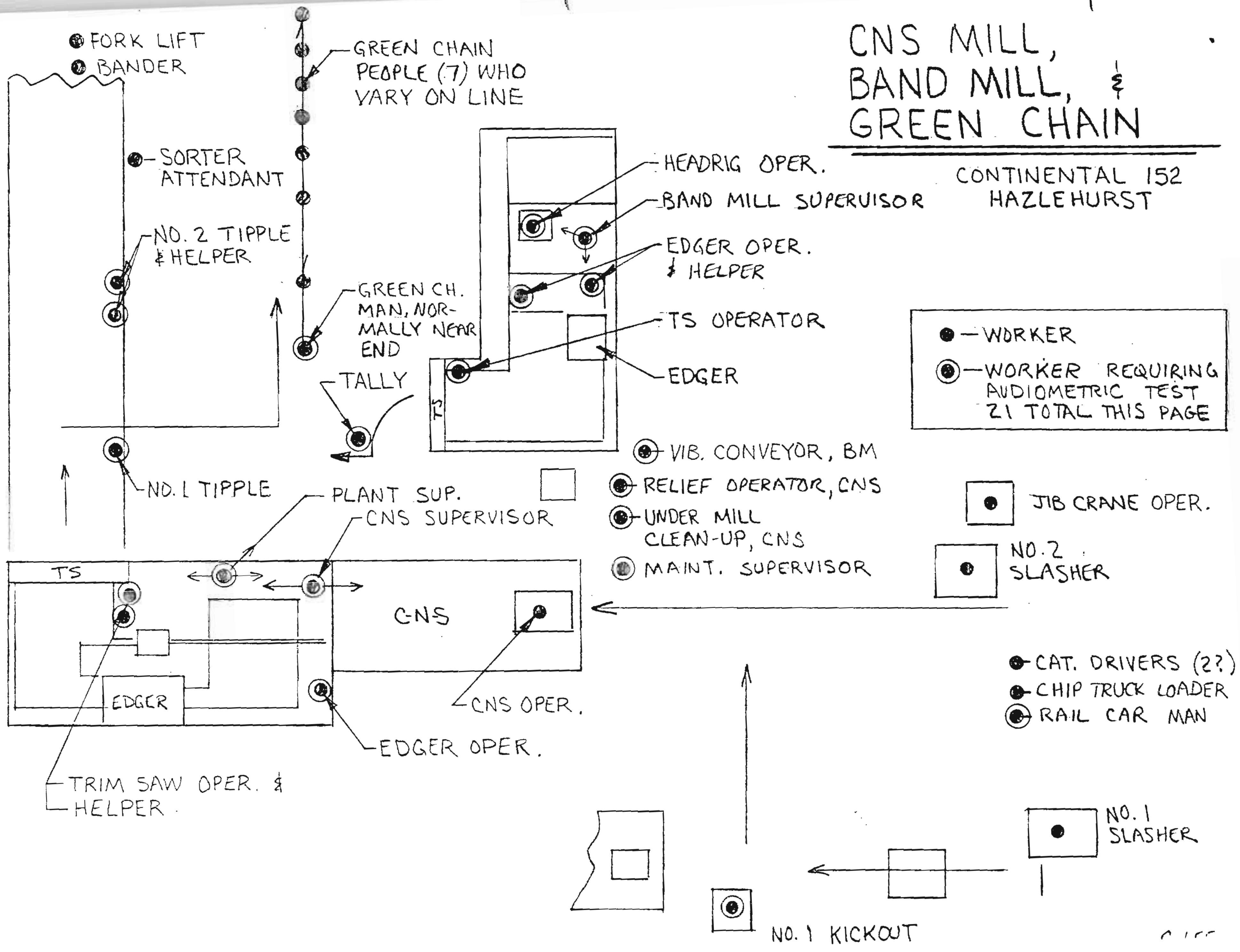
PLANER MILL

CONTINENTAL 152
HAZLEHURST



CNS MILL, BAND MILL, & GREEN CHAIN

CONTINENTAL 152
HAZLEHURST



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ENGINEERING EXTENSION LABORATORY
Central Georgia Area Office
1818 Forsyth Street
Suite 112
P. O. Box 5105
Macon, Georgia 31208

August 26, 1980

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

As you requested, I contacted Jim Hankla to schedule audiometric testing for your personnel. This will involve the approximately forty employees we have identified.

Hankla agreed to Monday, September 15, 1980. I will notify him of your working hours (7-5:30) with the anticipation of beginning the tests as soon as possible that morning. He thought all of the people could be tested (at the rate of about five per hour) that day IF someone is waiting when the preceding person is finished.

His work will be done at the rate of $6.00 per test and will include: a.) pure tone testing; b.) tympanometric testing; c.) individual interpretations; and d.) a summary. No travel expenses are to be charged.

A purchase order should be sent to:

Mr. James W. Hankla, Audiologist
Ware County Board of Health
604 Riverside Drive
P. O. Box 1946
Waycross, GA 31501.

Originally we had planned to use the "computer room" to do the testing. Since originally checked, however, this room has grown noisier (as regards the low levels needed for this testing) with the addition of the Coke machine, the refrigerator, the computer terminal, and the copying machine.

Checks were made again of the computer room, your office, and Connie's office. The terminal has to be used for 1½-2 hours on Mondays to send out payroll, I understand. Let's plan to move the Coke machine, copying machine, and refrigerator/microwave to the reception area again for this day.

During the terminal use time, we can use one of the other offices mentioned. Connie will be out half that day for dental work. Truck passage by your office makes it less desirable for test use.

Again, properly worn plugs must be used by all employees who are in the noisy areas at all prior to the testing. In particular, stress this to those who are in the borderline areas, such as the planer mill pullers, chip-n-saw tipples, tally man, clean-ups, and others. All need this emphasized before and on that day, including your supervisors. They should make their people aware of what's going on.

Enclosed is a listing of personnel for testing. The drawings I sent you (re letter of August 15, 1980) are my basic references as to who needs testing. As we discussed, additions are yourself, Ernie Gray, and Alan Lane. An additional planer mill puller has been employed (Booker), so he will need testing, too. One note of correction - the person identified as a rail car man in the chip-n-saw mill is actually a clean-up man (J. Miles). Please double check these names.

I spoke with Mr. Paul Broome, of Broome Lumber Co. in Washington, Georgia. He would like his employee (and his son) to be tested, too, at his expense.

Please do not hesitate to call if you have any questions about this material.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures
cc: Mr. Ed Hester
Mr. Reimer Bland
Mr. Jim Hankla
Ms. Connie Hanson
Mr. Sherman L. Dudley

GTEES

Georgia Institute of Technology
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ATLANTA, GEORGIA 30332

ENGINEERING EXTENSION LABORATORY
Central Georgia Area Office
1818 Forsyth Street
Suite 112
P. O. Box 5105
Macon, Georgia 31208

August 26, 1980

Mr. James M. Hankla, Audiologist
Ware County Board of Health
604 Riverside Drive
P. O. Box 1946
Waycross, GA 31501

Dear Jim:

The copy of the enclosed letter should indicate that a purchase order is to be sent to you soon for the testing of approximately forty employees of Continental Forest Industries in Hazlehurst.

One employee of Broome Lumber Company, Washington, Georgia, will also be tested. This man works at Continental Forest Industries, but is not their employee. Mr. Paul Broome will send you a check for him, or either reimburse me after testing.

Also enclosed are copies of taped levels taken recently in three CFI office areas. If the computer room, especially, looks unacceptable, then let us know as soon as possible. Several machines had been added since originally checked; I don't think any of them were running at the time of these tests. I'll try to get various machines out of there by the 15th anyway. Also, note that 1½-2 hours of the day that room will be required for transmitting payroll information.

Rough sketches are included for your information of the plant site and office area.

Please contact Jerome Rogers or Ed Hester in Hazlehurst for final arrangements, times, etc.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures

Called Rogers' office & Hankla 9/10/80 to remind & check on progress. PO received. Rogers' office to be used, 9/15/80.

GTEES

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION
ATLANTA, GEORGIA 30332

ENGINEERING EXTENSION LABORATORY
Central Georgia Area Office
1818 Forsyth Street
Suite 112
P. O. Box 5105
Macon, Georgia 31208

October 29, 1980

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Enclosed are several drawings which have been completed on the planer mill trim saw acoustical enclosure. The concept here is to totally surround or "cocoon" the noise source with an enclosure utilizing existing machine parts as much as possible. See the drawing with green and red lines on it.

The proper implementation of this control is expected to have a significant impact on the noise exposures of the trim saw operator and the five graders down from him. The exposures of the two graders closest to the planer outfeed and the round table man will also be improved with concurrent use of previously discussed controls for the planer infeed and planer enclosure itself.

Of special importance is the minimization of all open areas in the enclosure. The infeed tunnel is designed to bring to a minimum or eliminate the length of time that the infeed curtains are open. It provides support for double curtains at this location which is so close to the operator's work position. Let me again illustrate the importance of open area hole reduction. The area of the suggested steel strip between conveyor guides on the outfeed side (drawing 5 of 8) is only 1.5% of the entire outfeed side area above the conveyor. If this area were otherwise open, rather than closed, the 37 dB transmission loss potential of 16 gauge steel at 1,000 Hz would drop to 18 dB, more than half! Strive to minimize all holes with careful construction.

Absorption, also, is essential to the successful functioning of this enclosure. The removable absorption panels utilized are thought to be rugged enough to withstand the sawmill environment on the long term. The sliding panels were detailed in earlier materials. You may wish to downscale the plywood from 3/4" thickness, but don't go under 3/8". This change will necessitate changes to the steel angles' dimensions which hold the panels. The idea of panels which are removable for inspection, cleaning, or replacement with a minimum of production time loss is one which I'm sure you can appreciate. Perforated metal could initially be omitted, if desired; or conversely, additional expanded metal might be thought necessary from the start to protect the material. It could be added to the metal angles.

You may be tempted to leave out the absorption material at first. If this is your decision, please plan to put it in at a not-too-distant point in time.

Comments on various pages of the planer mill trim saw enclosure design package:

Sheet 1 of 8 - The structure has been checked out by myself and David Poss, PE, on our staff in the Augusta office. The loads will be shared by the cantilevered section and the large 3'-5" beam. Of particular concern was the strength necessary to withstand thrown outfeed materials. If the uppermost position of the blades does not come above the level of the 30° diagonal and the lower horizontal square member (extending out from the 1'-5" square existing beam), a heavy catwalk-type steel mesh could be welded to them for protection of the upper portions of absorption. I felt that you would know best how advisable this was, and would leave its inclusion to you. I sought to minimize any welding to existing trim saw structure. Also, much of this enclosure can be built and brought to the trim saw without undue downtime to get it into place.

Sheet 2 of 8 - Panels of 4' width are convenient to handle, fabricate, and lift. A good bit of repeatability is evident.

Sheet 4 of 8 - You may opt to just weld the enclosure structure to the I-beams instead of fabricating angles to attach it to.

Sheet 5 of 8 - Continuous hinges are quite desirable to eliminate the kinds of degradation you can now see on your trim saw's hanging infeed panels. The best configuration for the belting - slitting, attachment, ease of replacement, etc. will probably have to evolve from your people. There may be a optimum belting length, too, but all the way down is best noise-wise.

Sheet 6 of 8 - Additional drawings will follow to fill other large and small holes on the ends of the existing enclosure. I need to look at the existing ends again. Also, an additional panel set may be put on from the infeed area to the vibrating conveyor at a later time.

Sheet 8 of 8 - If the existing hanging panels (with thickness greater than 16 gauge) are utilized for the infeed side, then I think this tunnel arrangement can be hung to them very conveniently. Otherwise, new 16 gauge panels may need additional stiffening. I did not realize, for some reason, that the pressure bars occasionally must come through those large holes at the bottoms of the existing infeed panels, so belting can't very well go over them as previously thought. This tunnel's use might well make the final difference for the operator's levels.

I have not looked at possible heat buildup inside the enclosure. Please forward me the motor sizes so that this may be done and any changes of design to the top panel for heat escape may be done before fabrication. It might also be a good idea to run this enclosure by your insurance folks.

Enclosed is literature on a Newman Whitney overhead trim saw. As you are aware, I am sure, some types of saws don't cut at <u>all</u> two foot stations below eight feet. Is this a possible noise source change which you could make? I realize that defect trimming is possible here, but it is probably not nearly so useful or often employed here as in the Chip-N-Saw or band mill. Maybe just the saws at two feet or six feet could be eliminated. Please get back with me on the possibilities of this idea. If your mill policies and production levels, etc. allow this to be done, it may be worthwhile noise-wise with little loss in production or income.

Contact has been made with Hannaco Knives & Saws of Florence, S.C. (803-662-6345) concerning their "less noise" saws. I have talked with Ray Connell of their sales department. I asked, and he suggested, a contact for a "testimonial" about these saws' qualities - Bill Skelton, Mill Manager, Chicago Mill & Lumber, Tallula, LA, 318-574-4040. You could best assess the operational aspects of these type blades. Meanwhile, I'll seek to find out how good they really are as a noise source modification. Their use could be a possibility.

Other items - There are air exhausts at the planer infeed and the planer trim saw areas, in addition to those previously listed in a letter to Connie of May 15, 1980. These types of sources are relatively easy to control. As I mentioned to you, it would be a good move to wipe them off the list and forget about them (except for periodic checks). They are of special importance noise-wise at the Chip-N-Saw edger, the No. 1 kickout (one or two places now), and the No. 1 and No. 2 tipples. This would be a good item to include in the quarterly report to OSHA, were it completed.

Both the band mill and the No. 1 kickout booths need upgrading - replacing safety glass and seals primarily. They will require functioning HVAC systems for most seasons of the year before the operators can be expected to leave the doors and/or windows shut. Protect the headrig operator's glass on three sides (except the door side) with heavy expanded metal on angles. Hinge this protection from above so it may be temporarily moved away for the cleaning of the glass or other replacement materials.

If you recall, we discussed the administrative change of moving the planer infeed man. Two attachments illustrate the very cost effective desirability of doing this. Approximately 4 dBA may be achieved by a move out of six to seven feet. He can still walk in (toward the infeed mechanism) occasionally as required. I think this will be a good move. The operator should recognize this improvement.

I am interested in the audiologist's summary of tests for you. If possible, please send me a copy. Also, I trust that plans have been agreed upon to test the few people who were out the day of the tests. The people who were tested should still be wearing their plugs. Encourage your safety committees to obtain and use educational materials available from E-A-R occasionally, and to continue to include some positive discussions of plugs usage in each meeting.

Detail design for the Chip-N-Saw Mill trim saw is the next major item on my list. There are, of course, still some "small" items left for completion in the planer mill - notably the planer enclosure make-up air tunnel, wall completion near the hog, and finalization of the trim saw enclosure detail on the ends and the bottom.

Please do not hesitate to call with questions or comments concerning these materials, especially the trim saw enclosure. I am excited about its utilization and I think it will do a good job for you.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures
cc: Mr. Reimer Bland
Mr. David H. Poss, II
Mr. Sherman L. Dudley

CONTINENTAL FOREST INDUSTRIES (Mill No. 152)

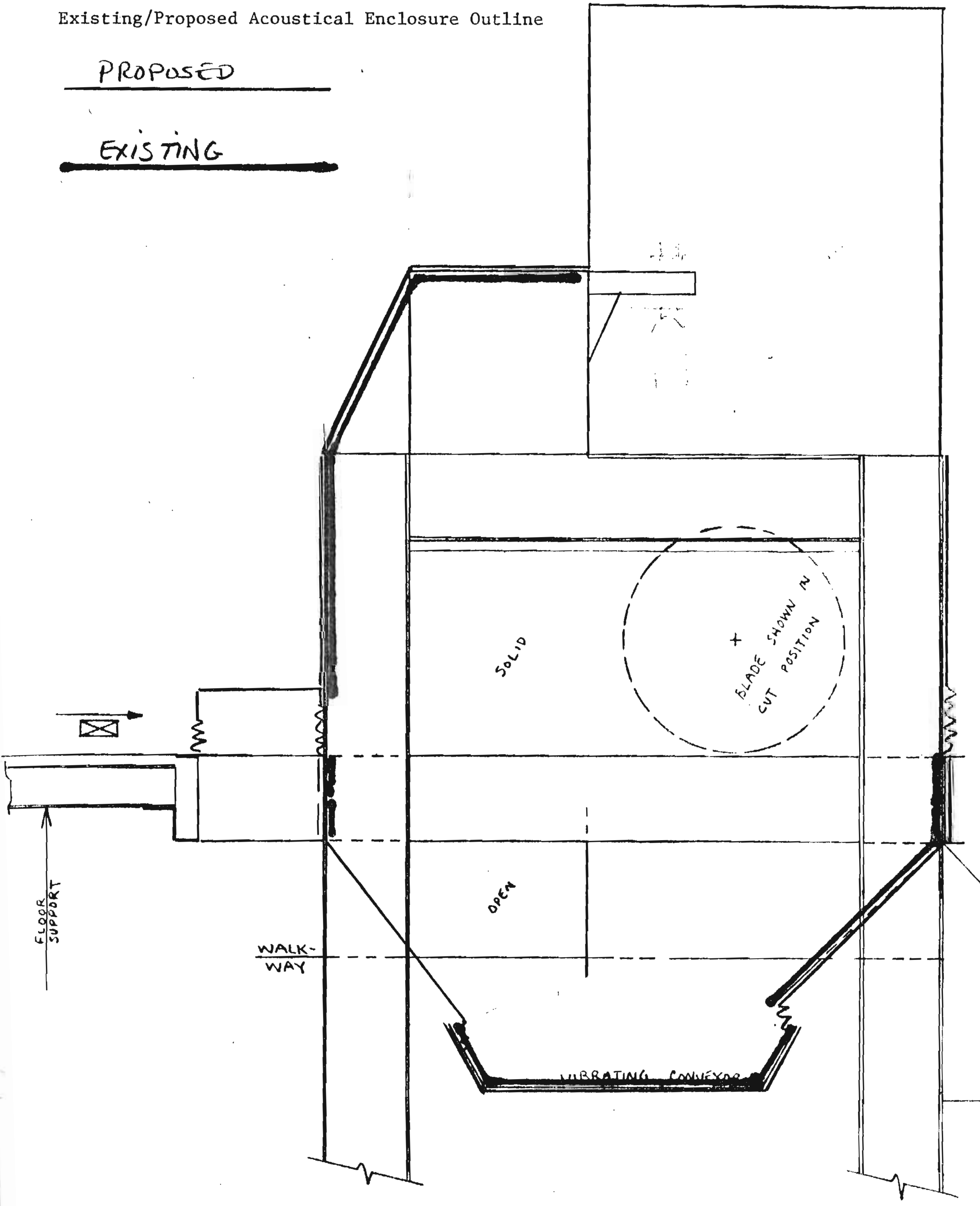
Planer Mill Trim Saw,
Top Rear Enclosure Access Panel Sizes

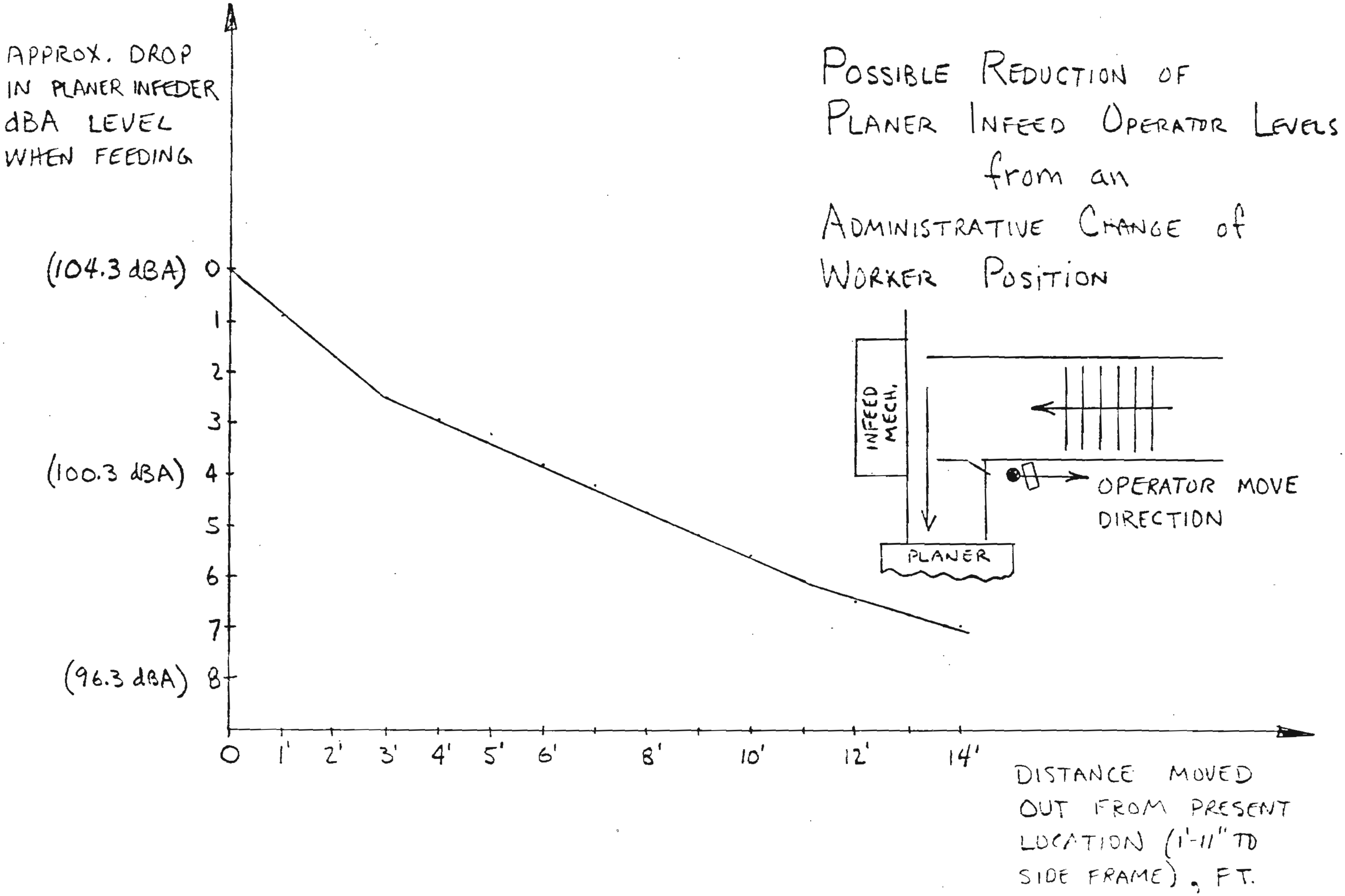
PANEL I.D.	SIZE		NUMBER NEEDED	COMMENTS
	APPROX. WIDTH	APPROX. LENGTH		
A (upper infeed)	1'-11½"	3'-11½"/3'-11 3/4"	5	Repeated panels at nominal 4' spanwise spacing
	1'-11½"	3'-10 1/4"	1	Odd panel on operator's end
	1'-11½"	1'-7½"	1	Odd panel on hog end
B (top)	2'-7 3/4"	3'-11½"/3'-11 3/4"	5	Repeated panels at nominal 4' spanwise spacing
	2'-7 3/4"	3'-10 1/4"	1	Odd panel on operator's end
	2'-7 3/4"	1'-7½"	1	Odd panel on hog end
C (upper outfeed)	3'-6½"	3'-11½"/3'-11 3/4"	5	Repeated panels at nominal 4' spanwise spacing
	3'-6½"	3'-10 1/4"	1	Odd panel on operator's end
	3'-6½"	1'-7½"	1	Odd panel on hog end
D (bottom outfeed)	1'-8½"	8'-11½"/8'-11 3/4"	5	Repeated panels at nominal 4' spanwise spacing
	1'-8½"	3'-3 3/4"	1	Odd panel on operator's end
	1'-8½"	1'-1"	1	Odd panel on hog end

Typical Section of Planer Mill Trim Saw

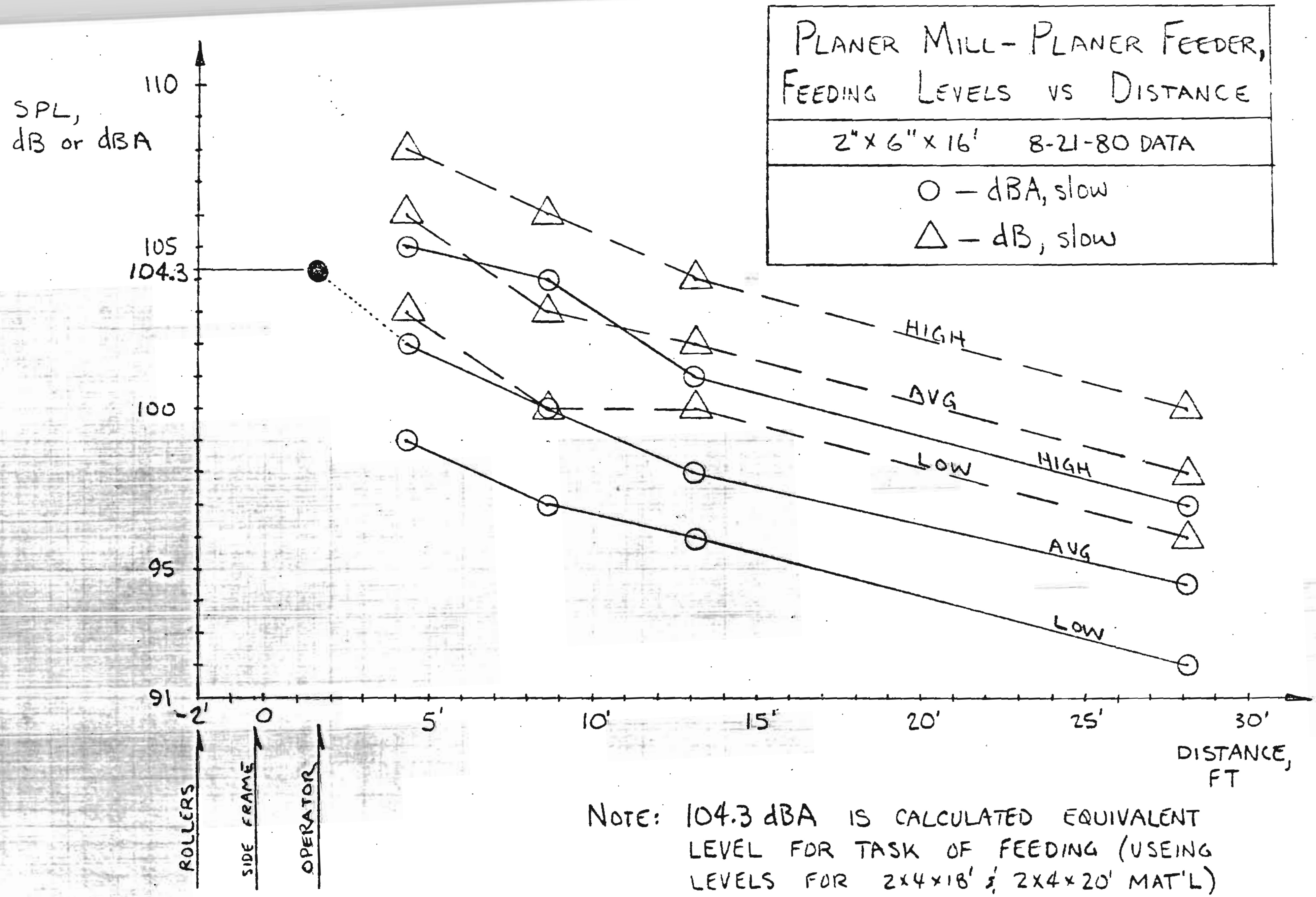
Continental Forest Industries Mill No. 152

Existing/Proposed Acoustical Enclosure Outline





Possible Reduction of Planer Infeed Operator Levels from an Administrative Change of Worker Position



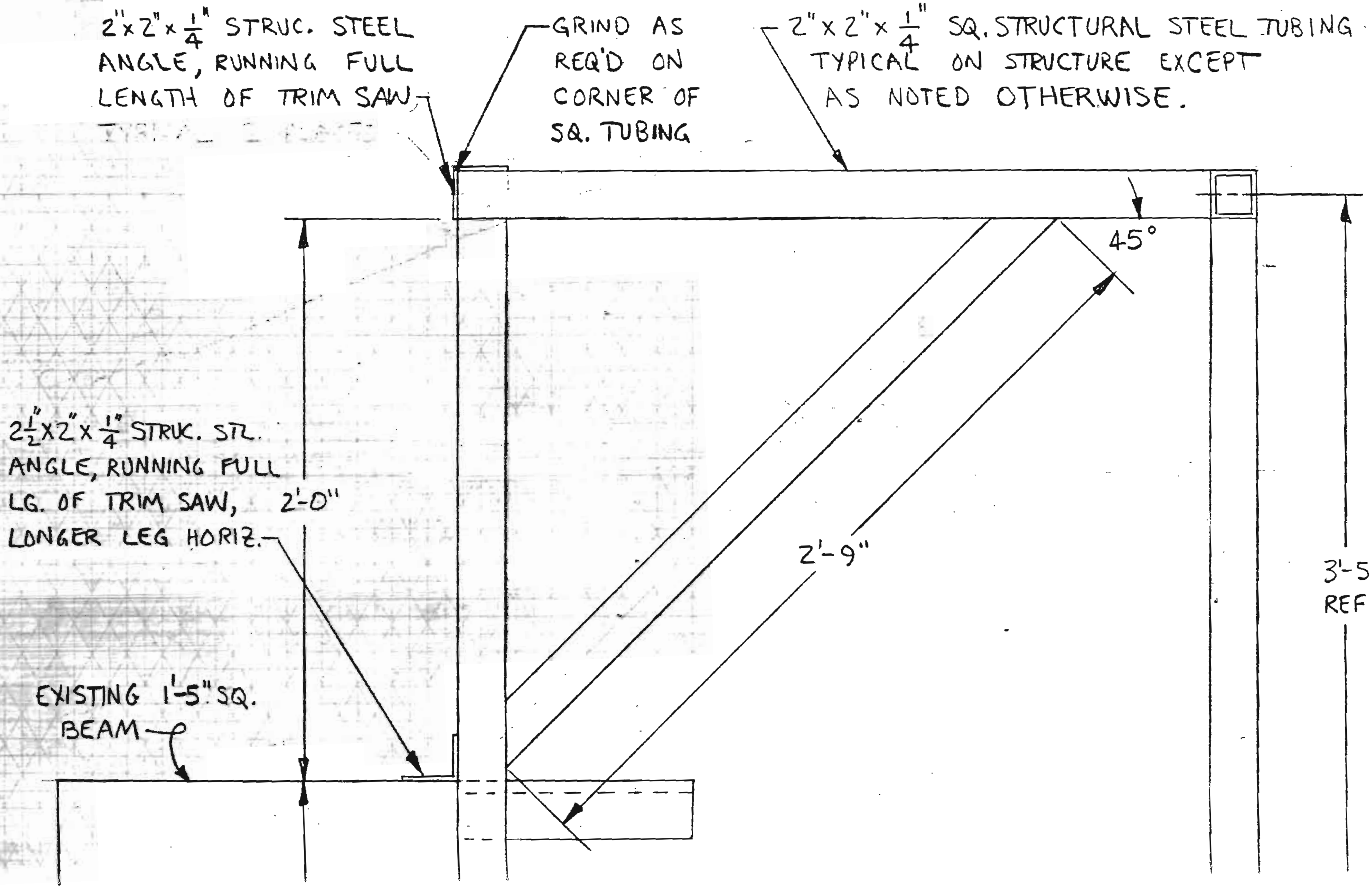
NOTE: 104.3 dBA IS CALCULATED EQUIVALENT LEVEL FOR TASK OF FEEDING (USEING LEVELS FOR 2x4x18' & 2x4x20' MAT'L)

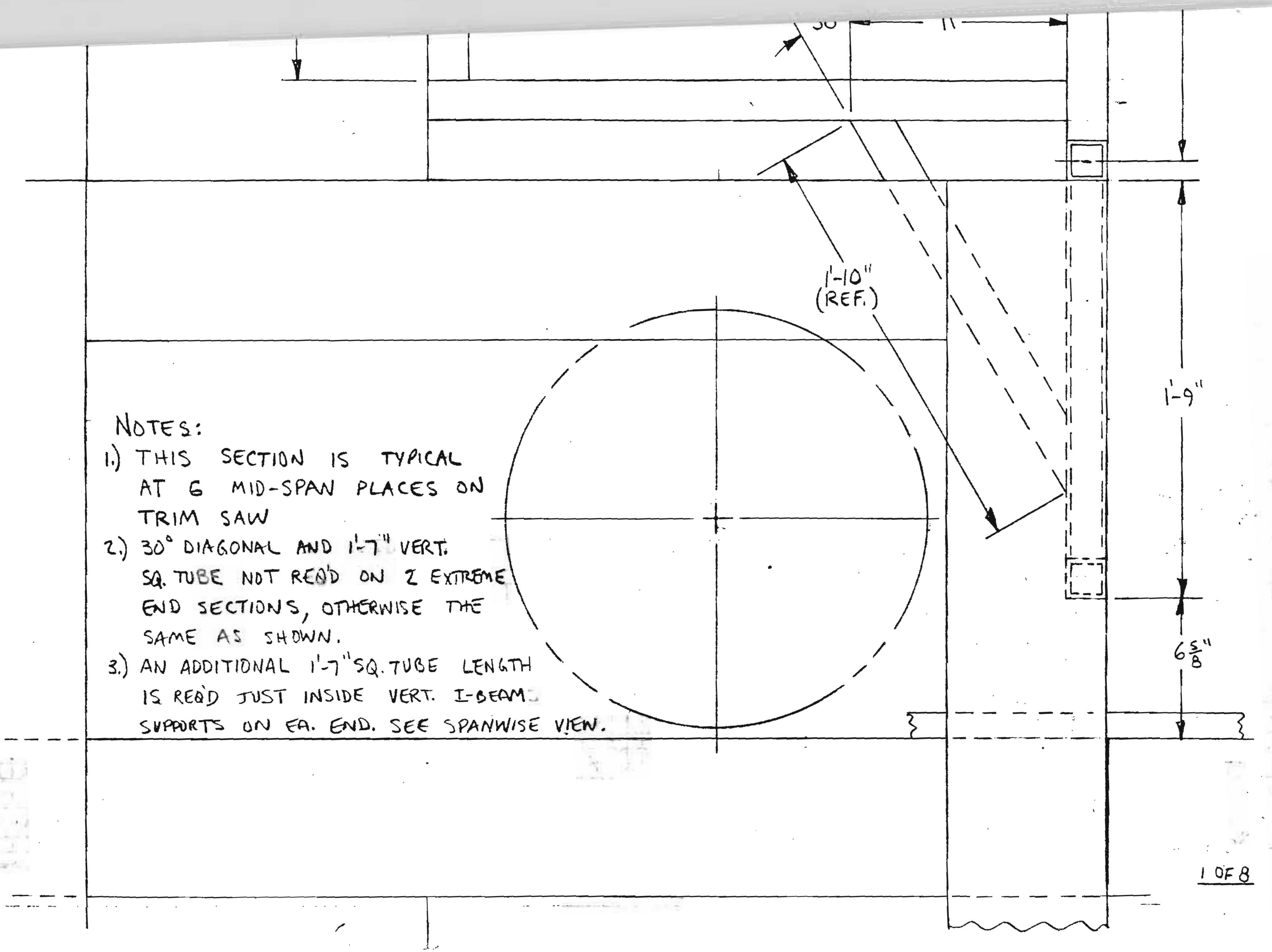
G. LEE, 8/80

PLANER MILL TRIM SAW ACOUSTICAL ENCLOSURE
DETAIL SECTION- STRUCTURE

SHEET 1 OF 8

SCALE: 1"=6"
G.H. LEE, GA TECH IED, MACON
9/80



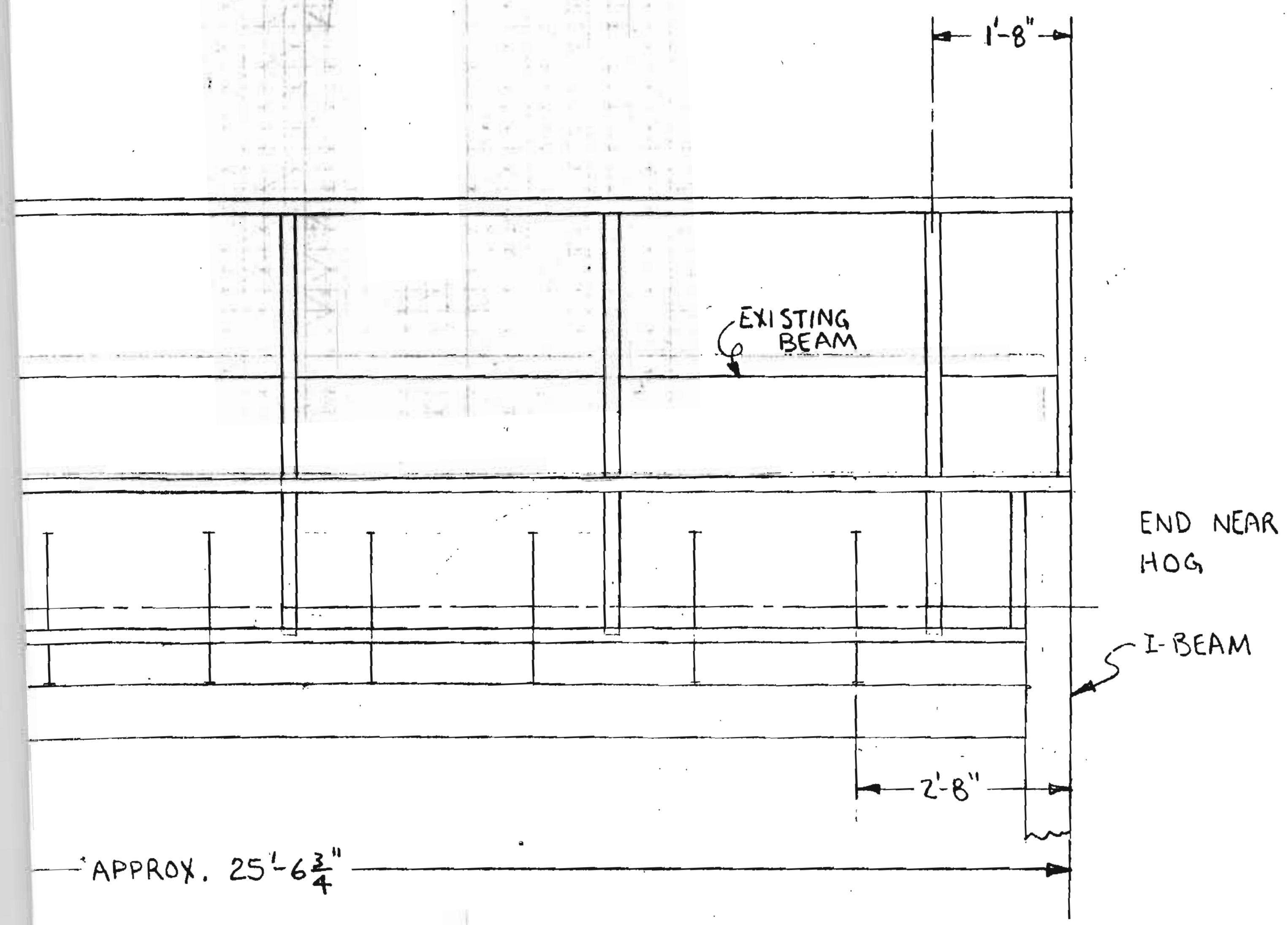


NOTES:

1.) THIS SECTION IS TYPICAL AT 6 MID-SPAN PLACES ON TRIM SAW

2.) 30° DIAGONAL AND 1'-7" VERT. SQ. TUBE NOT REQ'D ON 2 EXTREME END SECTIONS, OTHERWISE THE SAME AS SHOWN.

3.) AN ADDITIONAL 1'-7" SQ. TUBE LENGTH IS REQ'D JUST INSIDE VERT. I-BEAM SUPPORTS ON EA. END. SEE SPANWISE VIEW.

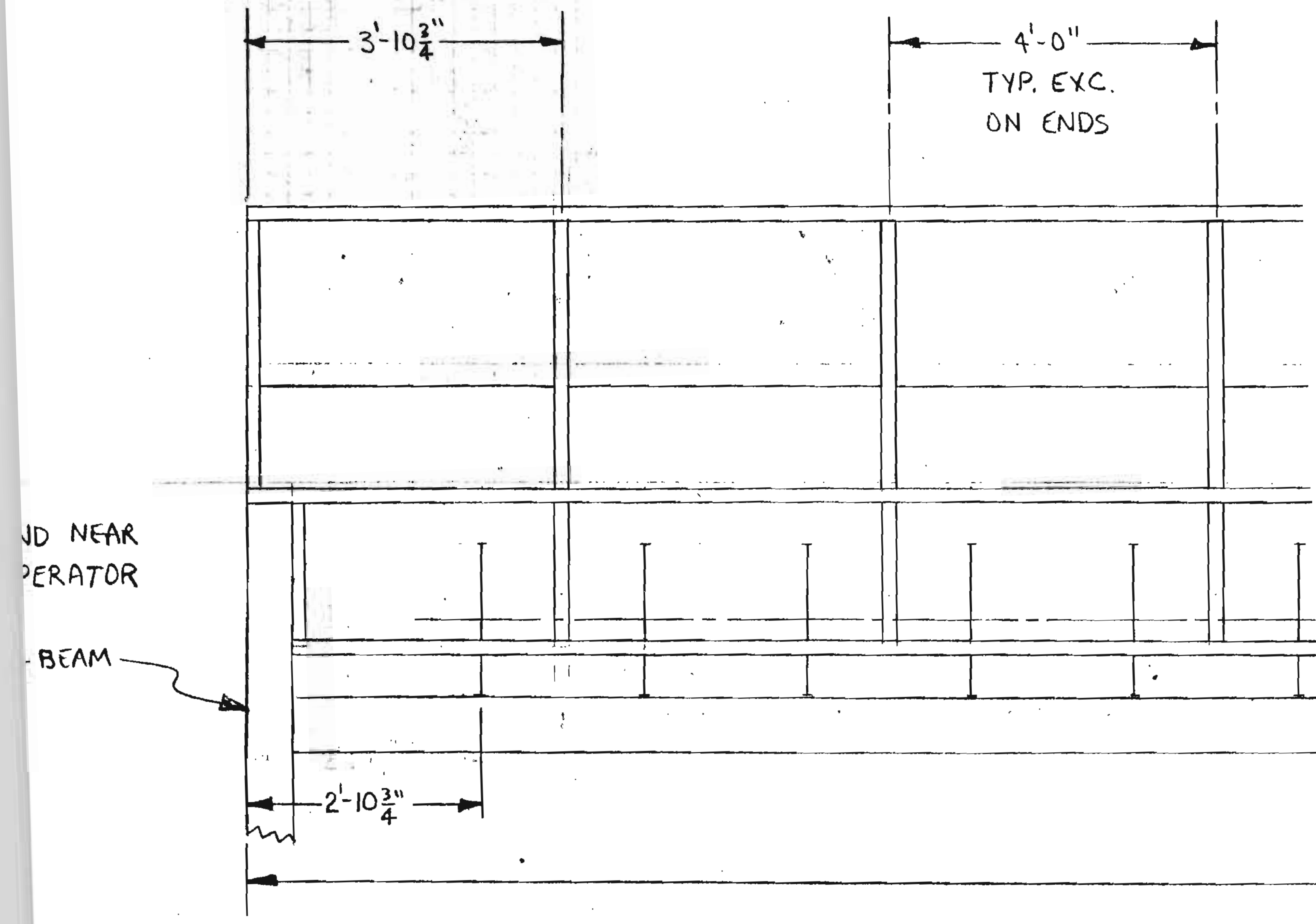


Enclosure for CFI
Planer Mill Trim Saw

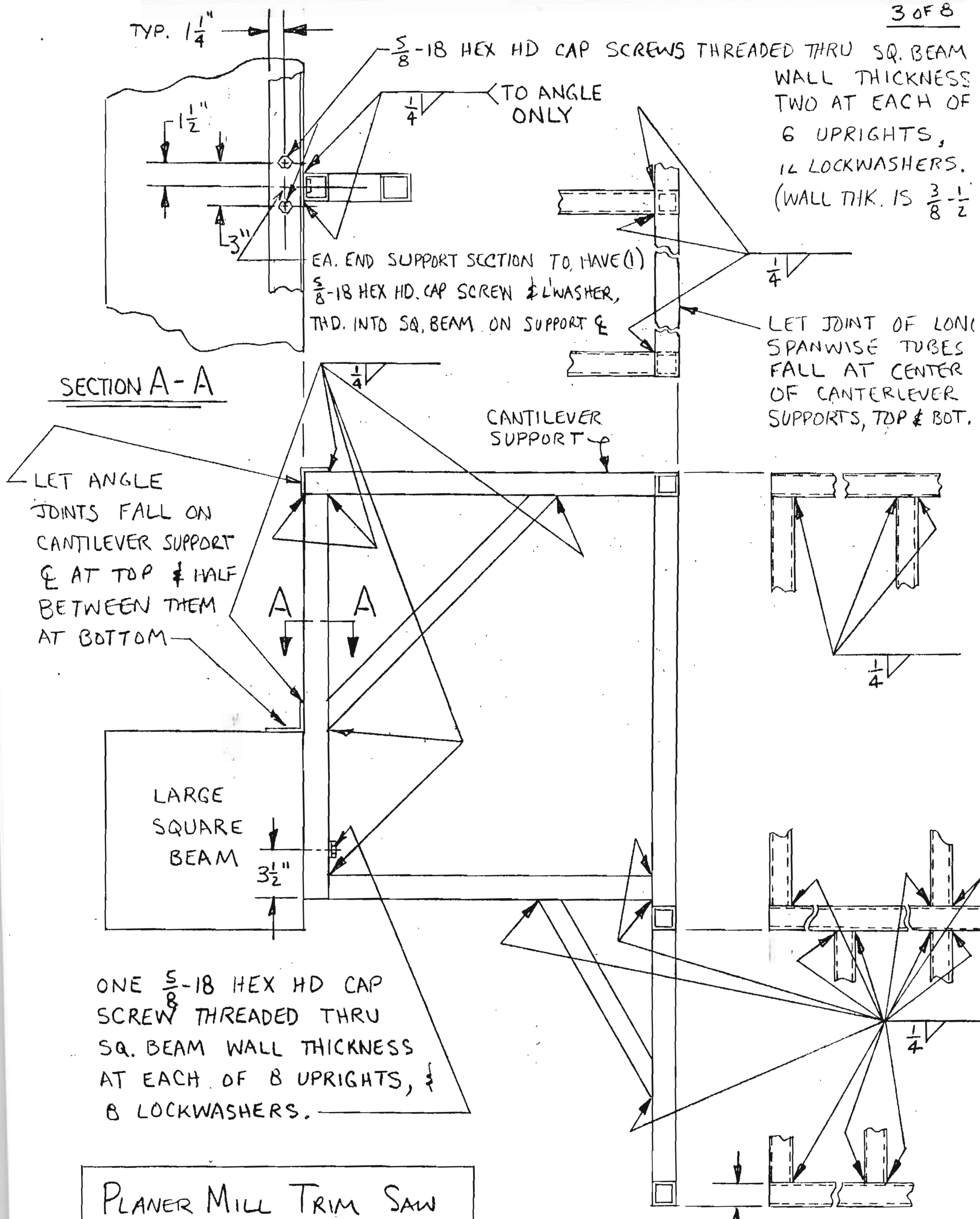
Outfeed End
Spanwise View

G.H. LEE, GA TECH IED 9/80
SCALE: $\frac{1}{2}$" = 12"

SHEET 2 OF 8



portion of
2 of 8

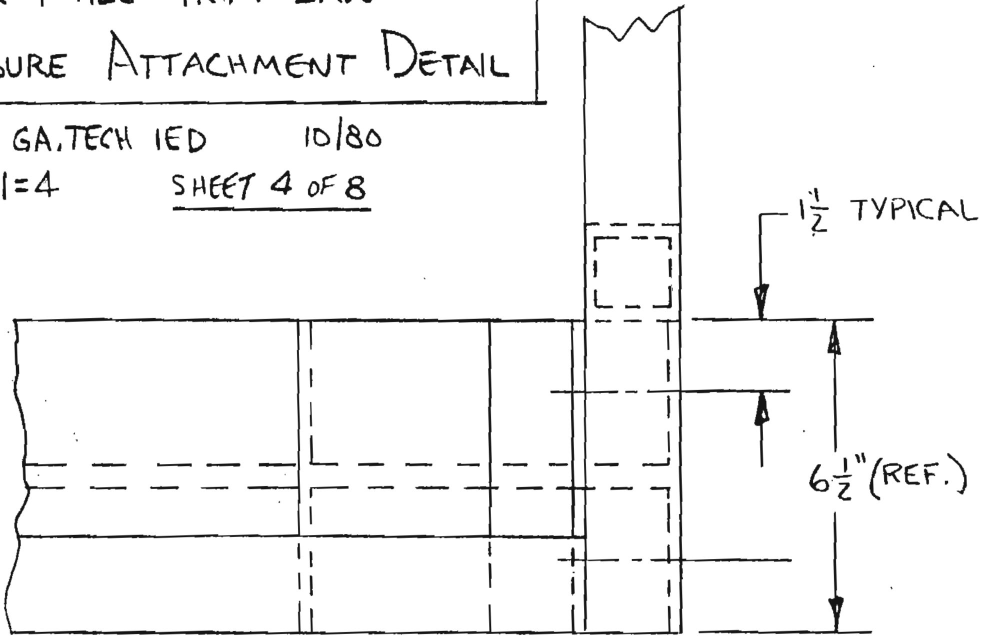


PLANER MILL TRIM SAW
STRUCTURAL SUPPORT WELDS

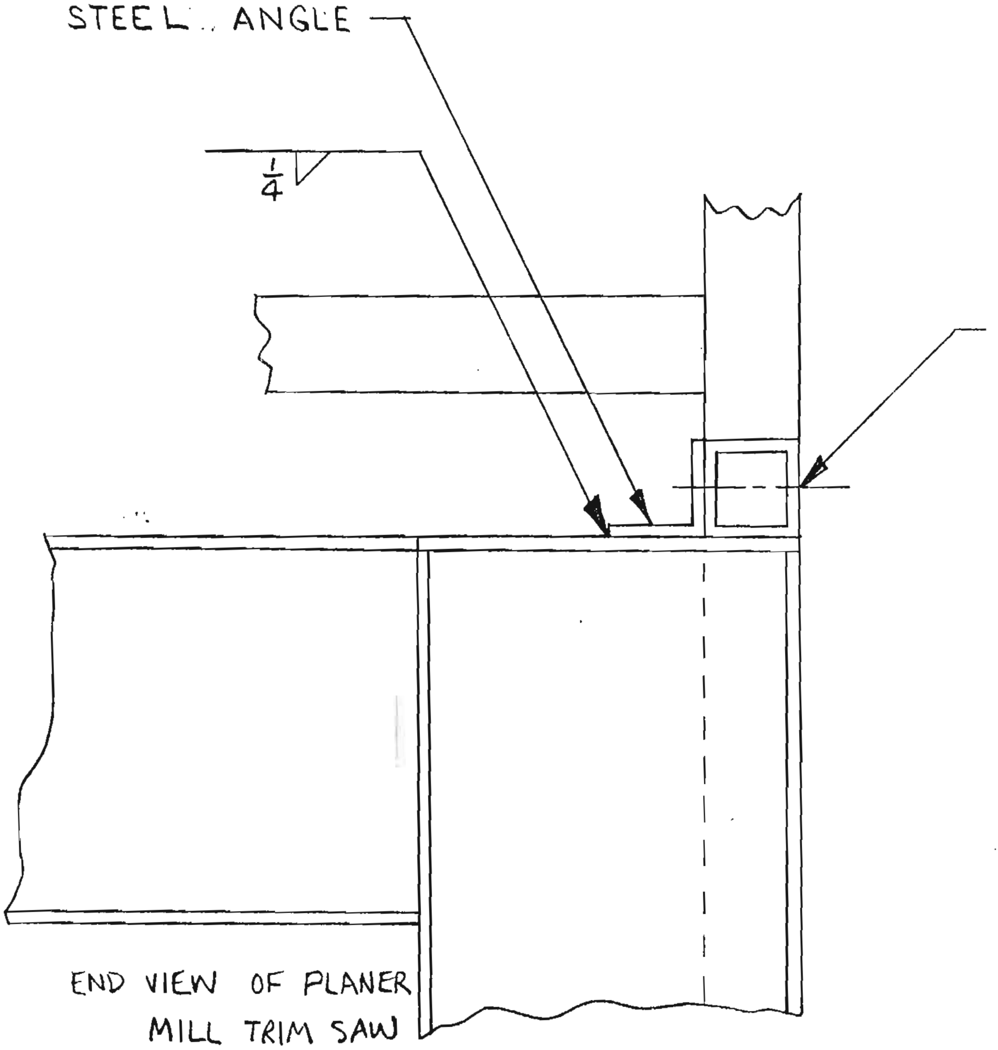
G.H.LEE, GA.TECH IED. 10/80
SCALE: NTS SHEET 3 OF 8

PLANER MILL TRIM SAW ENCLOSURE ATTACHMENT DETAIL

G.H.LEE, GA.TECH IED 10/80
SCALE: 1=4 SHEET 4 OF 8

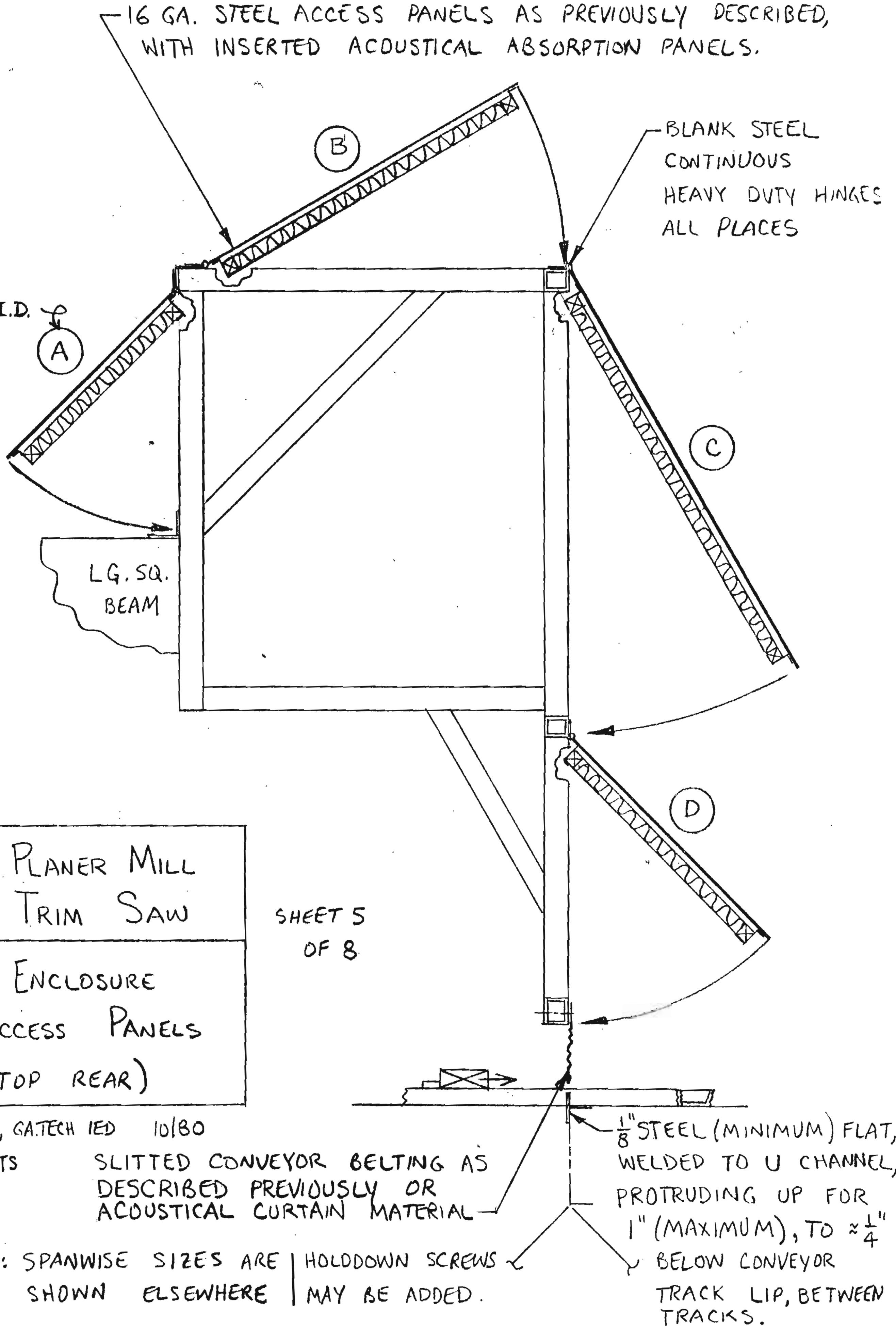


2 x 2 x $\frac{1}{4}$" STRUC. STEEL ANGLE



$\frac{1}{2}$-20 HEX HD CAP SCREW, LOCKWASHER, $\frac{1}{2}$ NUT, 2 PLACES EA. END OF TRIM SAW. PUT NUT ON OUTSIDE. HEAD MAY BE WELDED TO ANGLE AFTER ASSEMBLY.

END VIEW OF PLANER MILL TRIM SAW SUPPORT BEAMS FROM OPERATOR'S END



PLANER MILL
TRIM SAW

ENCLOSURE
ACCESS PANELS
(TOP REAR)

SHEET 5
OF 8

G.H. LEE, GA.TECH IED 10/80
SCALE: NTS

NOTE: SPANWISE SIZES ARE SHOWN ELSEWHERE

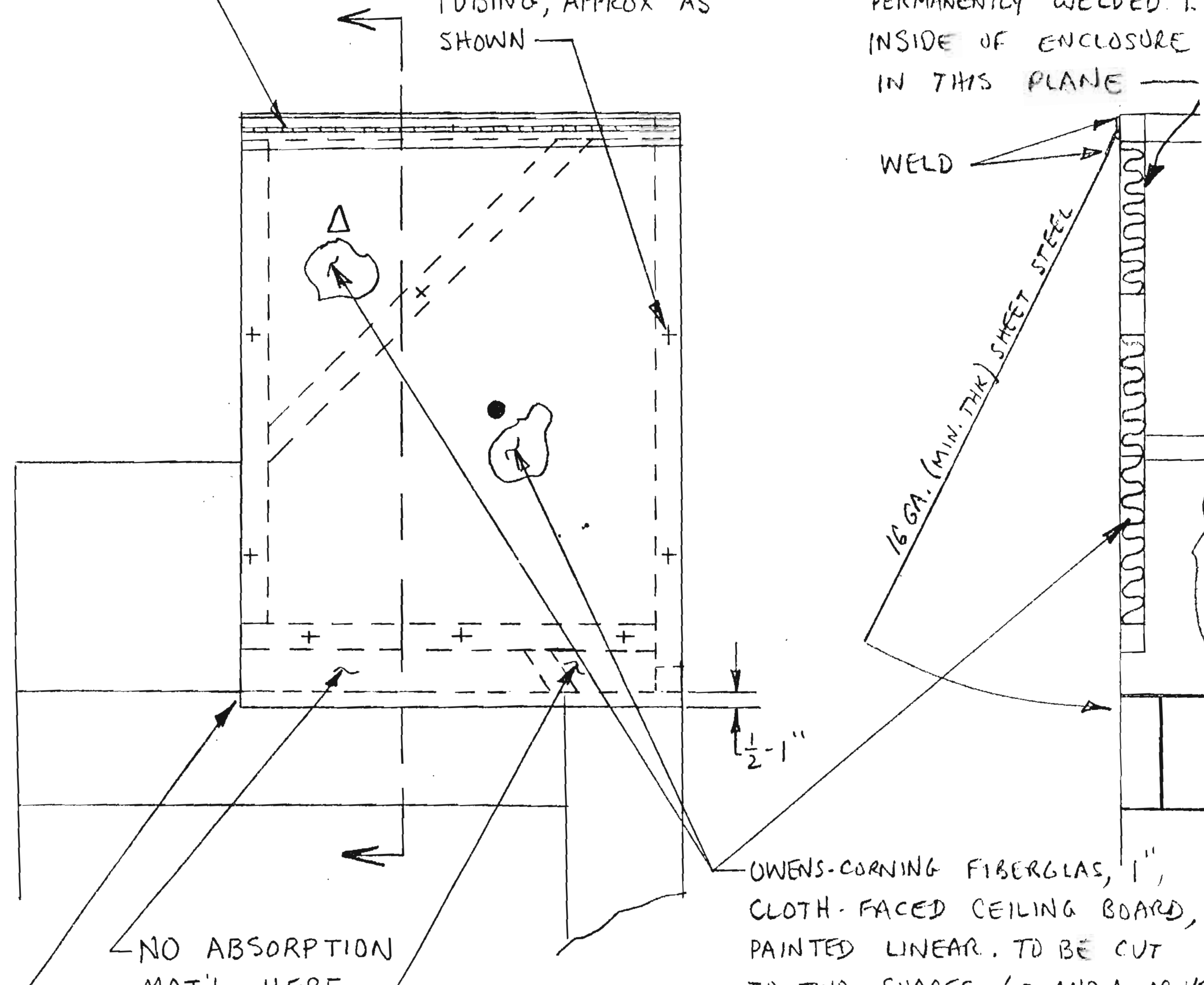
PLANER MILL TRIM SAW
TOP OUTFEED END PANEL DETAILS

OPERATOR'S END SHOWN, HOG END SIMILAR
G.H.LEE 10/80 SHEET 6 OF 8
SCALE: APPROX 1"=12"

BLANK STEEL CONTINUOUS HEAVY DUTY HINGE

$\frac{1}{4}$" MACH SCREWS & LOCKWASHERS AFTER DRILL & TAP OF SQ. TUBING, APPROX AS SHOWN

PERFORATED METAL AS PREVIOUSLY SPECIFIED (37-50% OPEN AREA) PERMANENTLY WELDED T
INSIDE OF ENCLOSURE IN THIS PLANE



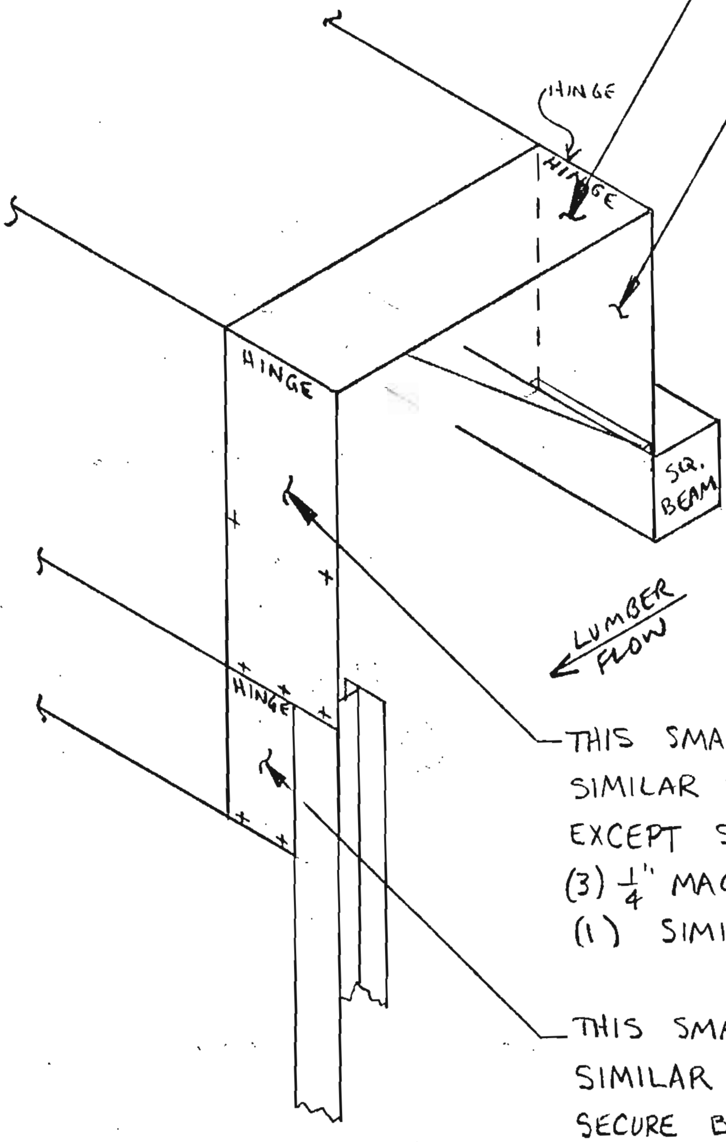
NO ABSORPTION MAT'L HERE

OWENS-CORNING FIBERGLAS, 1", CLOTH-FACED CEILING BOARD, PAINTED LINEAR. TO BE CUT TO TWO SHAPES (● AND Δ ABOVE AND PLACED SNUGLY BETWEEN 16 GA. SHT & PERFORATED METAL

NOTE THAT 16 GA. PANEL EXTENDS DOWN SLIGHTLY BELOW I-BEAM LIP.

THIS TOP PANEL TO HINGE SIMILAR TO OTHERS, BUT WELD PERFORATED METAL AS ON END PANELS TO ACCOMODATE SNUGLY FITTED ABSORPTION MAT'L (NO SLIDE OUT ABSORP. PANEL HERE).

- ADD EXTRA SHORT LENGTH OF 2x2 ANGLE FOR BOTTOM SUPPORT.
- WELD PERFORATED METAL ON INSIDE OF PANEL AREA, ON INSIDE SURFACE OF 2x2 SQ. TUBES.
- CUT PREVIOUSLY SPECIFIED ABSORP. MAT'L TO FIT SNUGLY BETWEEN SQ. TUBES & BETWEEN PANEL & PERFORATED METAL
- PANEL WILL HINGE FROM TOP WITH (3) $\frac{1}{4}$" MACH. SCREWS SECURING BOTTOM EDGE IN PLACE TO ANGLES



THIS SMALL PANEL TO BE DONE SIMILAR TO TOP PANEL ABOVE, EXCEPT SECURE BOTTOM EDGE WITH (3) $\frac{1}{4}$" MACH. SCREWS AND SIDES WITH (1) SIMILAR SCREW $\frac{1}{2}$ UP EA. SIDE.

THIS SMALLEST PANEL TO BE DONE SIMILAR TO TOP PANEL ABOVE, EXCEPT SECURE BOTTOM EDGE WITH (2) $\frac{1}{4}$" MACH. SCREWS.

PLANER MILL TRIM SAW HOG END PANEL DETAILS

G.H. LEE 10/80 SCALE: NTS

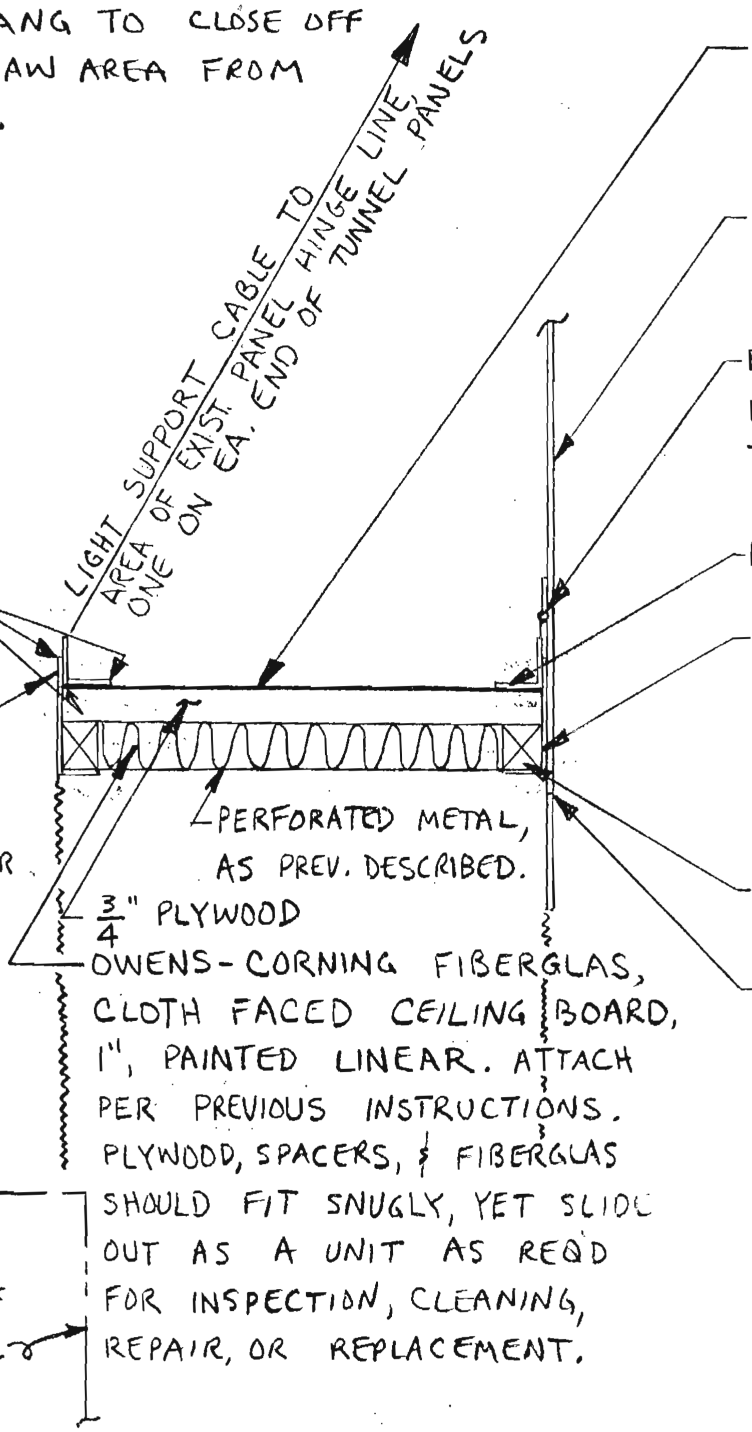
SHEET 7 OF 8

NOTE: USE LOCKWASHERS UNDER HDS. OF SCREWS.

PLANER MILL TRIM SAW INFEED TUNNEL

SHEET 8
OF 8

TUNNEL TO EXTEND OUT TO AREA OF TOP LIP OF VERTICAL "U" CHANNEL, APPROX 14" FORWARD OF (2) LARGE VERT. I-BEAM SUPPORTS. ACOUSTICAL CURTAIN OR BELTING WILL BE ATTACHED AT TWO PLACES AND HANG TO CLOSE OFF THE SAW AREA FROM ABOVE.



LIGHT SUPPORT CABLE TO AREA OF EXIST. PANEL HINGE LINE, ONE ON EA. END OF TUNNEL PANELS

16 GAUGE STEEL (MIN.) SHEET. SPANWISE LENGTHS MATCHED TO EXISTING PANE

EXISTING HEAVY GAUGE STEEL PANELS AT PLANER MILL TRIM SAW INFEED.

BLANK STEEL CONTINUOUS HEAVY DUTY HINGE, ATTACH TO PANELS & ANGLES

TYPICAL FILLET WELDS

1 x 1 x $\frac{1}{8}$ ANGLE (2)

$1\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{16}$ ANGLE, (2),

ACOUS. CURTAIN OR BELTING ATTACH.

PERFORATED METAL, AS PREV. DESCRIBED.

$\frac{3}{4}$" PLYWOOD

OWENS-CORNING FIBERGLAS, CLOTH FACED CEILING BOARD, 1", PAINTED LINEAR. ATTACH PER PREVIOUS INSTRUCTIONS. PLYWOOD, SPACERS, & FIBERGLAS SHOULD FIT SNUGLY, YET SLIDE OUT AS A UNIT AS REQ'D FOR INSPECTION, CLEANING, REPAIR, OR REPLACEMENT.

PINE SPACER STRIP, APPROX. 1 x $1\frac{1}{4}$, (2).

TOP OF HIGHEST SLOTS FOR LUMBER PRESSURE BAR CLEARANCE. BELTING WOULD BEST COVER THIS AREA BUT MUST ALLOW FREE MOVEMENT OF BAR.

APPROX. LOCATION OF "U" CHANNEL

SCALE: 1" = 4'' 10/80
G. LEE - GA. TECH IED

GT EES

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION
ATLANTA, GEORGIA 30332

ENGINEERING EXTENSION LABORATORY
Central Georgia Area Office
1818 Forsyth Street
Suite 112
P. O. Box 5105
Macon, Georgia 31208

November 11, 1980

A-2578

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Attached are four sheets of drawings which give the details of the recommended treatments for the end of the planer mill trim saw enclosure, as well as underneath treatments.

Again, please do not hesitate to call me if there are questions.

Sincerely,

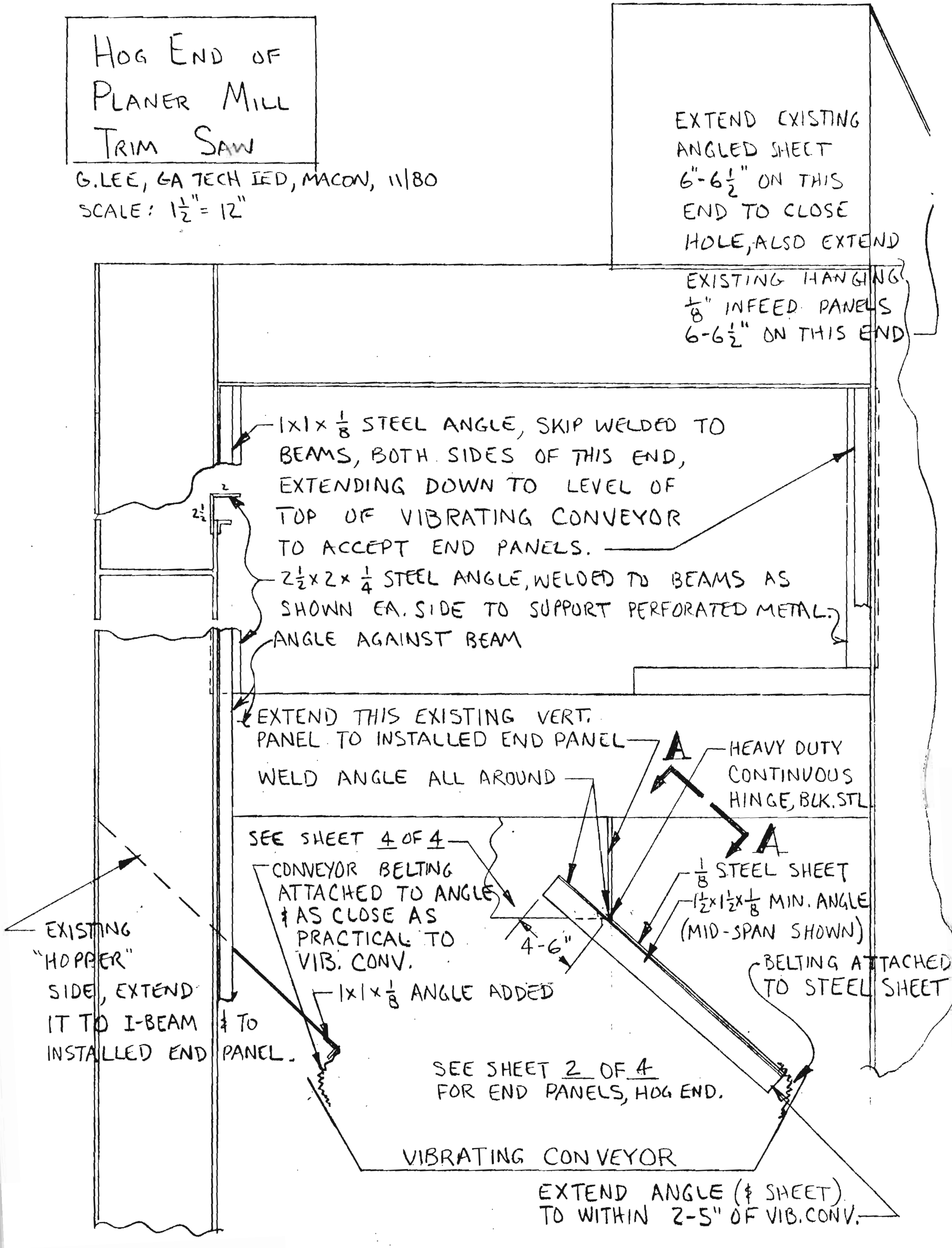
George H. Lee, Director
Central Georgia Area Office

GHL:msz
Attachments
cc: Mr. Reimer Bland
Mr. Sherman L. Dudley
Mr. David H. Poss, II

SHEET 1 OF 4
LETTER OF 11/11/8

HOG END OF PLANER MILL TRIM SAW

G. LEE, GA TECH IED, MACON, 11/80
SCALE: 1½" = 12"



EXTEND EXISTING ANGLED SHEET 6"-6½" ON THIS END TO CLOSE HOLE, ALSO EXTEND EXISTING HANGING ⅛" INFEED PANELS 6-6½" ON THIS END

1×1×⅛ STEEL ANGLE, SKIP WELDED TO BEAMS, BOTH SIDES OF THIS END, EXTENDING DOWN TO LEVEL OF TOP OF VIBRATING CONVEYOR TO ACCEPT END PANELS.

2½×2×¼ STEEL ANGLE, WELDED TO BEAMS AS SHOWN EA. SIDE TO SUPPORT PERFORATED METAL.

ANGLE AGAINST BEAM

EXTEND THIS EXISTING VERT. PANEL TO INSTALLED END PANEL

WELD ANGLE ALL AROUND

HEAVY DUTY CONTINUOUS HINGE, BLK. STL.

SEE SHEET 4 OF 4

CONVEYOR BELTING ATTACHED TO ANGLE & AS CLOSE AS PRACTICAL TO VIB. CONV.

⅛ STEEL SHEET

1½×1½×⅛ MIN. ANGLE (MID-SPAN SHOWN)

EXISTING "HOPPER" SIDE, EXTEND IT TO I-BEAM & TO INSTALLED END PANEL.

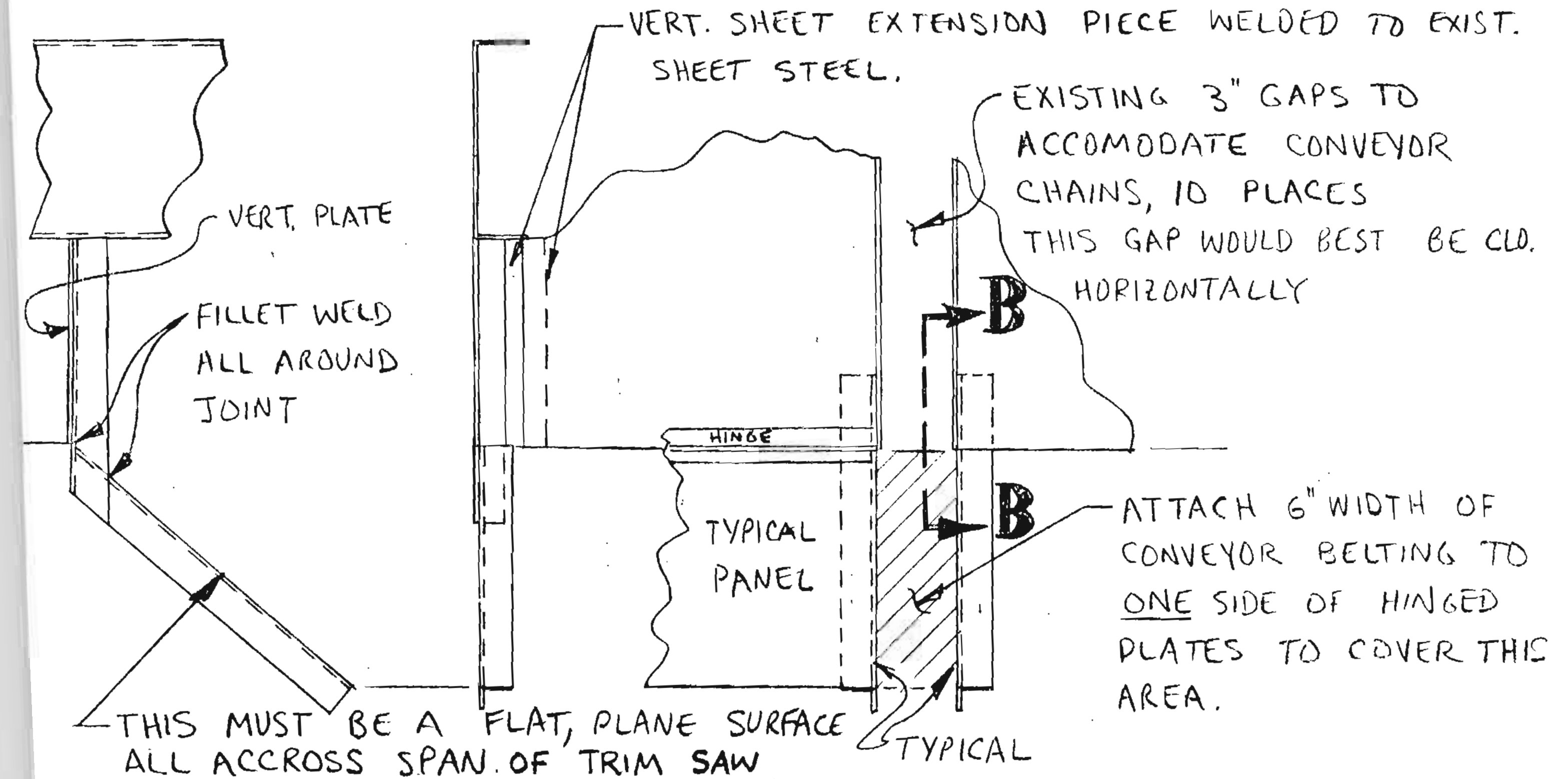
1×1×⅛ ANGLE ADDED

BELTING ATTACHED TO STEEL SHEET

SEE SHEET 2 OF 4 FOR END PANELS, HOG END.

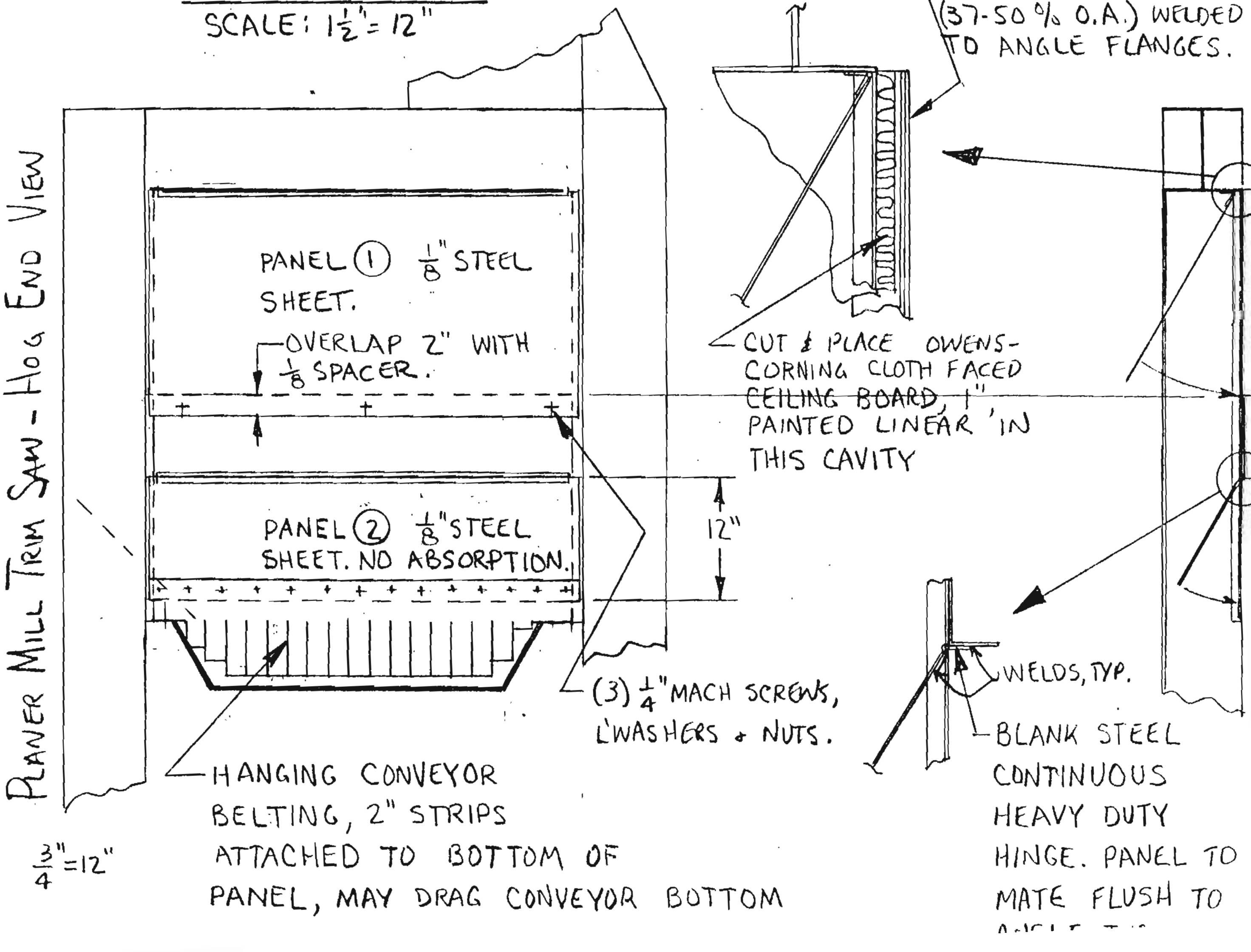
EXTEND ANGLE (& SHEET) TO WITHIN 2-5" OF VIB. CONV.

SHEET 2 OF 4
LETTER OF 11/11/8



VIEW **A-A**

SCALE: 1½"= 12"

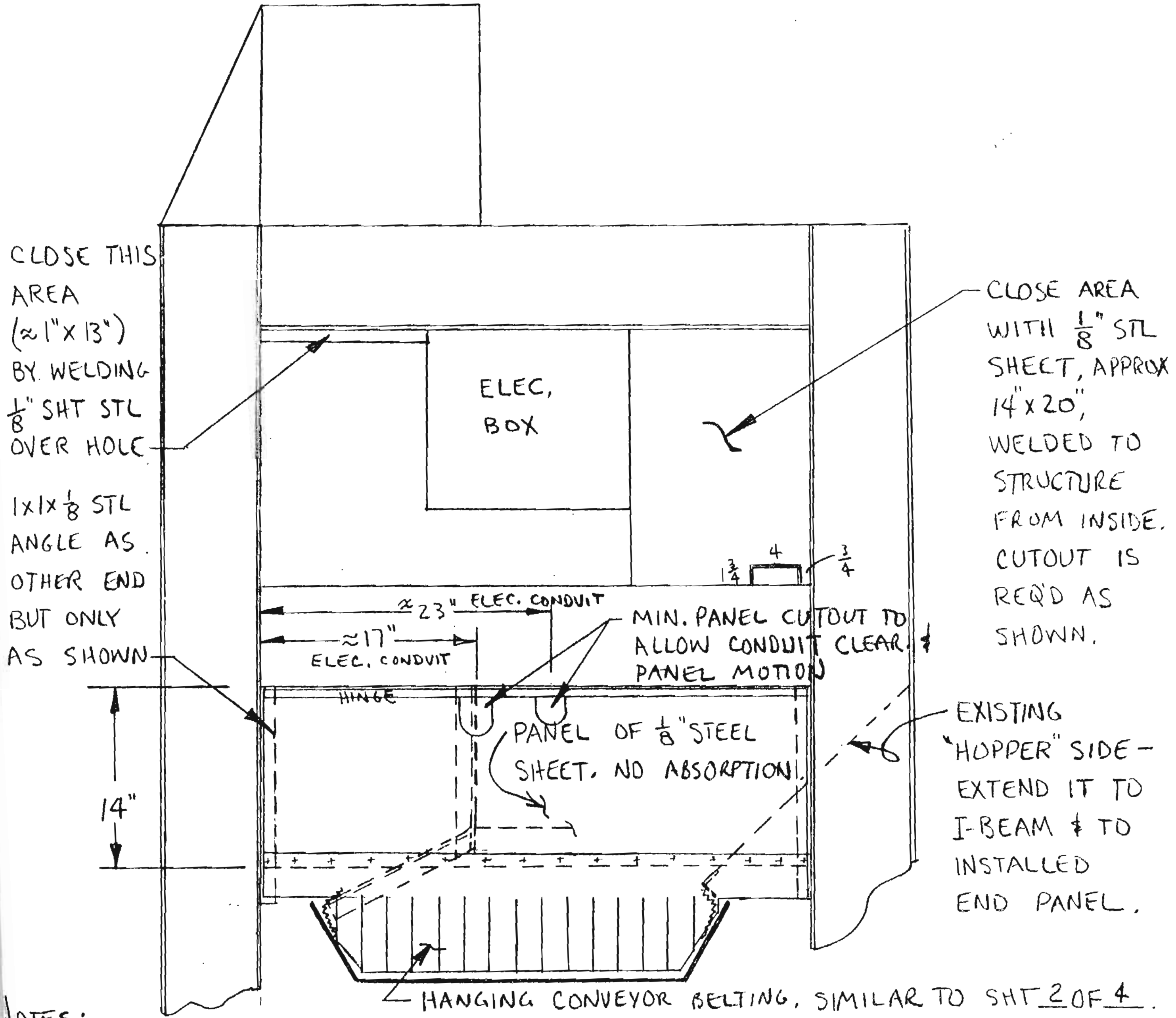


PLANER MILL TRIM SAW - HOG END VIEW

3/4" = 12"

PLANER MILL TRIM SAW
OPERATOR END VIEW

G. LEE, GA. TECH IED, MACON, 11/80
SCALE: 1"=12"



NOTES:

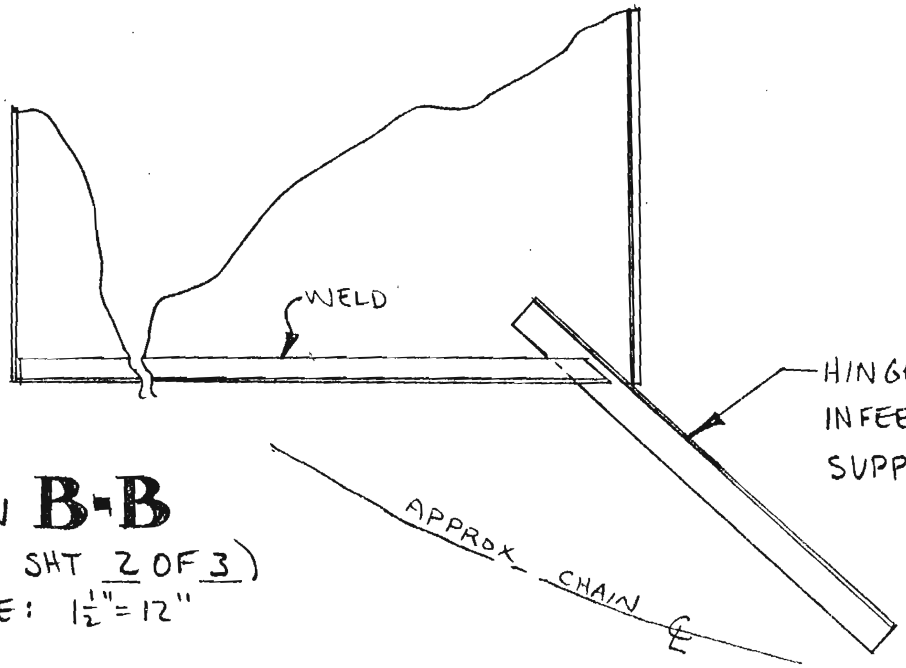
.) 1 1/2 X 1 1/2 X 1/8 ANGLE ATTACHED SAME (BUT SYMMETRICALLY) AS OTHER END FOR SUPPORT OF HINGED PANELS ON INFEED BOTTOM SIDE. SEE SHT 2 OF 4.

.) ANGLE ON OUTFEED "HOPPER" SIDE & BELTING ON IN & OUT FEED ANGLED PANELS IS SAME AS FROM OTHER END. SEE SHEET 1 OF 4.

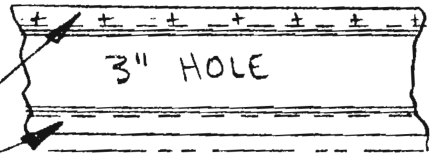
.) LOWER HINGED PANEL ATTACHMENT IS THE SAME AS ON HOG END OF TRIM SAW, SEE SHT 2 OF 4.

.) EXTEND EXISTING VERT. PANEL (AT 17") TO INSTALLED HINGED END PANEL.

SHEET 4 OF 4
LETTER OF 11/11/8



VIEW **B-B**
(FROM SHT 2 OF 3)
SCALE: $1\frac{1}{2}$"=12"



1x1x$\frac{1}{8}$ STEEL ANGLE WELDED TO BOTH SIDES OF CONVEYOR CLEARANCE TUNNEL. ATTACH 6" WIDE CONVEYOR BELTING TO ONE SIDE ONLY TO COVER 3" WIDE HOLE AT EACH OF 10 SUCH OPENINGS. CUT AWAY, OR DO NOT INSTALL BELTING IN IMMEDIATE RUNNING AREA OF CHAIN, AT LEAST 6" EITHER SIDE OF NORMAL CHAIN RUNNING POSITION. BELTING SHOULD BE THICK ENOUGH TO READILY REMAIN HORIZ. ACCROSS HOLE WITHOUT SAGGING.

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION
ATLANTA, GEORGIA 30332

ENGINEERING EXTENSION LABORATORY
Central Georgia Area Office
1818 Forsyth Street
Suite 112
P. O. Box 5105
Macon, Georgia 31208

January 29, 1981

Mr. Ed Hester,
Plant Superintendent
Continental Forest Industries
Box 416
Hazlehurst, GA 31539

Dear Mr. Ed:

Enclosed are copies of literature concerning dust masks which are available for possible use by the planer infeed man and the stick man. The simplest type would be what you need.

Mike Luster, an Industrial Hygienist in my office, did not feel that this situation warrants going to a replaceable filter or other more elaborate type respirator. This is especially true since a more elaborate system is (1) more expensive, and (2) requires more paperwork.

Certainly other equally fine products are on the market. The 3M literature was just conveniently handy.

Also, I had promised to check on the availability of E-A-R plugs in large sizes for one of your workers with an extra large ear canal. I can't think of his name, but he had the audiometric test done on 9/15/80. He is black and big. In any regard, they do not make other sizes. Try the large or extra large V-51R type plug for him.

I hope that this material helps in some way.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION
ATLANTA, GEORGIA 30332

ENGINEERING EXTENSION LABORATORY
Central Georgia Area Office
1818 Forsyth Street
Suite 112
P. O. Box 5105
Macon, Georgia 31208

February 18, 1981

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Enclosed are several items for your information and noise file:

1. A copy of a recent internal memo of mine which overviews a new amendment to the noise regulation 1910.95.

2. A copy of portions of the discussions and the amendment as it appeared in the January 22, 1981, "BNA," a publication which reviews such things.

3. A copy of portions of the February 5, 1981, BNA which notes the amendment's present status.

Sorry I missed seeing you last time down. I stopped by to get more physical measurements off of the C-N-S trim saw. Its enclosure design is about 75% complete.

Also enclosed for your information are summaries of estimates of both the C-N-S trim saw and the outside chipper noise level contributions to nearby positions. This basically quantifies what was probably realized previously to be the case, that their impact is pronounced.

Sincerely,

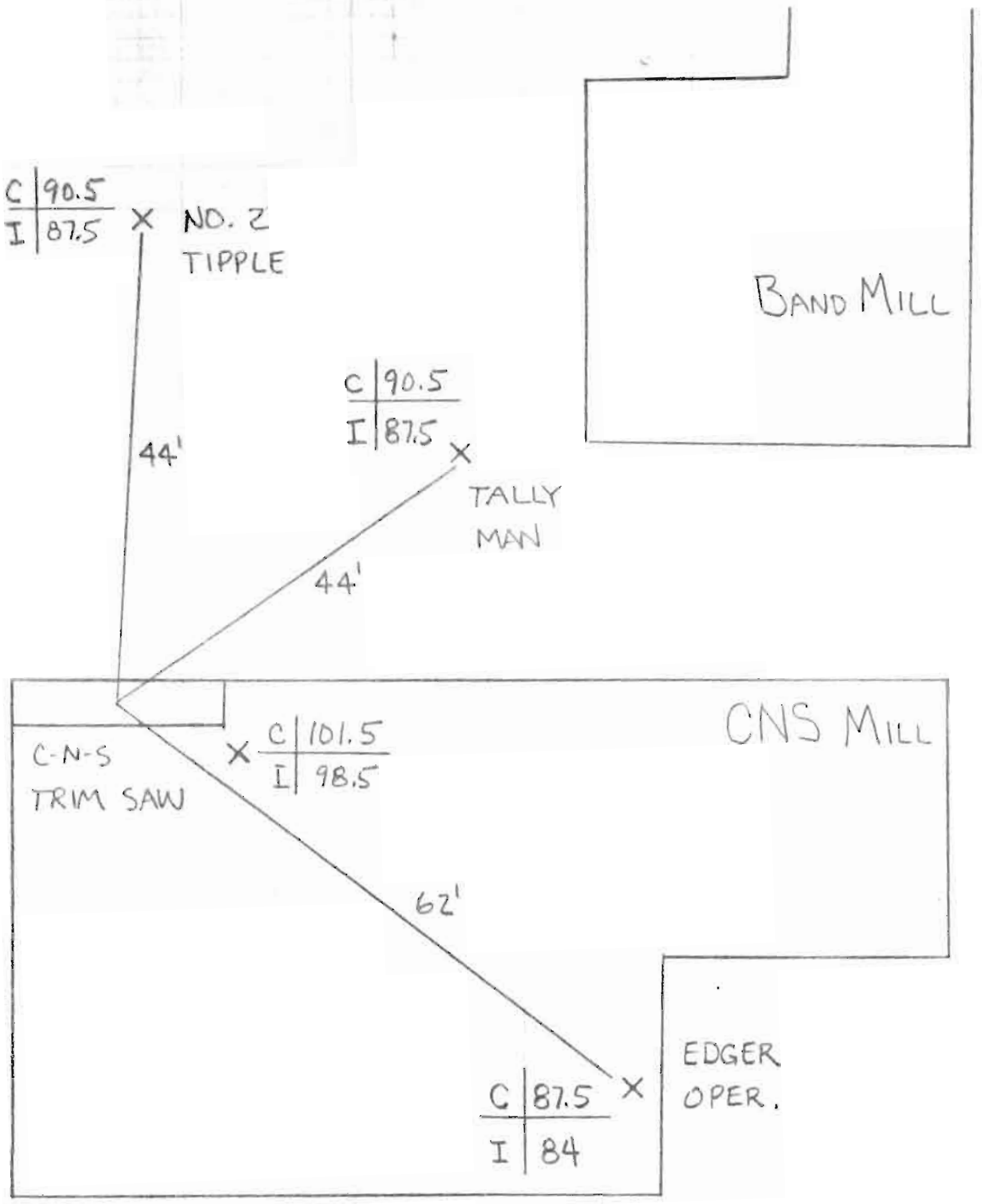
George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures

BY G. Lee DATE 12-19-80 SUBJECT C-N-S TRIM SAW NOISE CONTRIBUTION ESTIMATES TO OTHER POSITIONS SHEET NO. 1 OF

CHKD. BY DATE JOB NO. CONTINENTAL

DATA DATE 4-1 & 5-14-80



C ~ DBA LEVEL DUE TO CNS TRIM SAW ONLY CUTTING

I ~ DBA LEVEL DUE TO CNS TRIM SAW ONLY IDLING

NOTE: EDGER OPER. LEVELS ARE MINIMUMS SINCE FREE FIELD WAS ASSUMED.

BY G. LEE DATE 12-19-80 SUBJECT OUTDOOR CHIPPER NOISE CONTRIBUTION ESTIMATES TO OTHER POSITIONS SHEET NO. 1 OF 1
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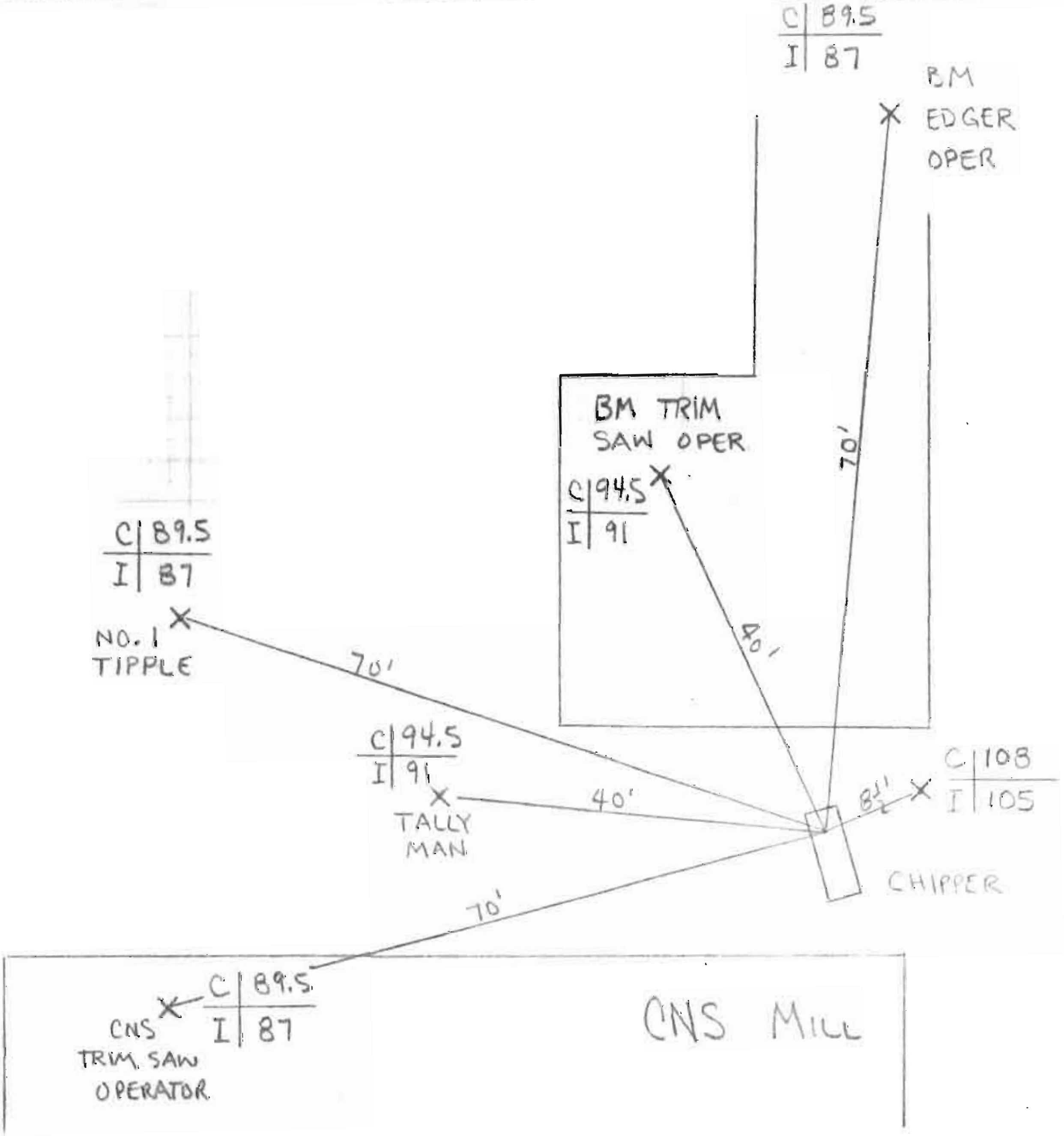
DATA DATE 11-5-80



C ~ DBA LEVEL DUE TO CHIPPER <u>ONLY</u> CUTTING

I ~ DBA LEVEL DUE TO CHIPPER <u>ONLY</u> IDLING

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION

INDUSTRIAL EXTENSION DIVISION
Central Georgia Area Office
1818 Forsyth Street
Suite 105
P. O. Box 5105
Macon, Georgia 31208
912/744-6190

March 23, 1981

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Enclosed are two blue-lined drawings of a more detailed description of the proposed noise enclosure for the Salem A-20 infeed mechanism. You may recall that the "idea sketch" for this enclosure was sent to you on May 15, 1980, for your critical review.

This drawing includes additional notes and dimensions for individual pieces. Every effort has been made to make this error free, but please don't hesitate to check it out yourself and suggest improvements.

A materials listing has been received by Connie and we discussed it by phone on the day she received it, last Tuesday 3/17.

I'm glad that you are wanting to proceed now with its implementation.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures

PLANER INFEED MECHANISM PARTIAL ENCLOSURE
Bill of Materials Listing

1. Finished pine, 2" x 2" x 135' Total or 45+ Board Feet.
2. Finished pine, 2" x 4" x 611' Total or 408+ Board Feet.
3. Finished pine, 2" x 6" x 17' Total or 17+ Board Feet.
4. Finished pine, 2" x 10" x 123' Total or 205+Board Feet (includes (4) 20' lengths).
5. 3/4" Exterior Plywood, 4' x 8' sheet, 20 sheets.
6. Owens-Corning Kraft Faced Building Insulation, rolls or batts, R-11 (3½"), total of 100' of 23" wide material or total of 200 sq. ft.
7. Owens-Corning Kraft Faced Building Insulation, rolls or balls, R-11 (3½"), total of 215' of 15" wide material or total of 270 sq. ft.
8. Heavy duty galvanized hex wire (chicken wire), any mesh size (1", 1½", or 2"), 4' wide roll, 125' minimum length approximately needed, probably must get roll of 150' length.
9. Sheet of 4' x 3', 1/4" thick Lexan (General Electric). Note: An additional piece 4' x 2' will be needed to upgrade the planer infeed operator's observation window.
10. Approximately 3 dozen lead anchors and bolts to attach the 2x4's to the concrete floor.
11. One 2½" open width heavy gauge continuous hinge with pierced screw holes, 48"long.
12. Seventeen No. 6 countersunk machine screws, nuts, and washers for attachment of above hinge to Lexan sheet plus similar number and size of wood screws. All probably from stock on hand. (Size matches typical hinge hole size available.)
13. Assorted nails and staples from stock supply.
14. Several tubes of good quality caulk.

NOTE: Some additional pine may be needed as a pad on the amount specified above.

Significant repeated lengths of 2x4's include, (60) at 5'-6" to 6'-5¼". See attached listing.

Significant repeated lengths of 2x2's include various lengths from 1'-2" to 7'-9".

Significant repeated lengths of 2x10's include (4) at 20' long, (2) at 6'-7½", and (6) at 4'-¼".

Significant repeated lengths of 2x6's include (1) at 6'-6¼" and (3) at 3'-3".

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912/744-6190

April 1, 1981

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Enclosed are copies of the most recent reviews pertaining to the status of the OSHA §1910.95 noise amendment. They came from the Occupational Safety & Health Reporter, a publication of the Bureau of National Affairs, Inc.

I hope that this follow-up information will be useful to you.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures

Georgia Institute of Technology
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1818 Forsyth Street
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912/744-6190

April 27, 1981

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Attached for your advanced review is:

1. A set of thirteen drawings which describe the Chip-N-Saw Trim Saw noise enclosure (excluding ends). Please note that these drawings are not final. I am, in fact, planning a trip soon to Hazlehurst to finalize several dimensions and small details. The general idea has previously been described verbally, but see the four attached 8 1/2 x 14 Xeroxed sheets.

2. A set of four drawings which describe the Chip-N-Saw Trim Saw noise enclosure end treatments. Again, their status is the same as above.

3. A very preliminary set of drawings which will describe an infeed tunnel for the outside Chipper.

As in the past, I have aimed the design to achieve:

1. Everyday production practicality and "usability."

2. Long-term sturdiness and ability to withstand everyday sawmill wear-and-tear.

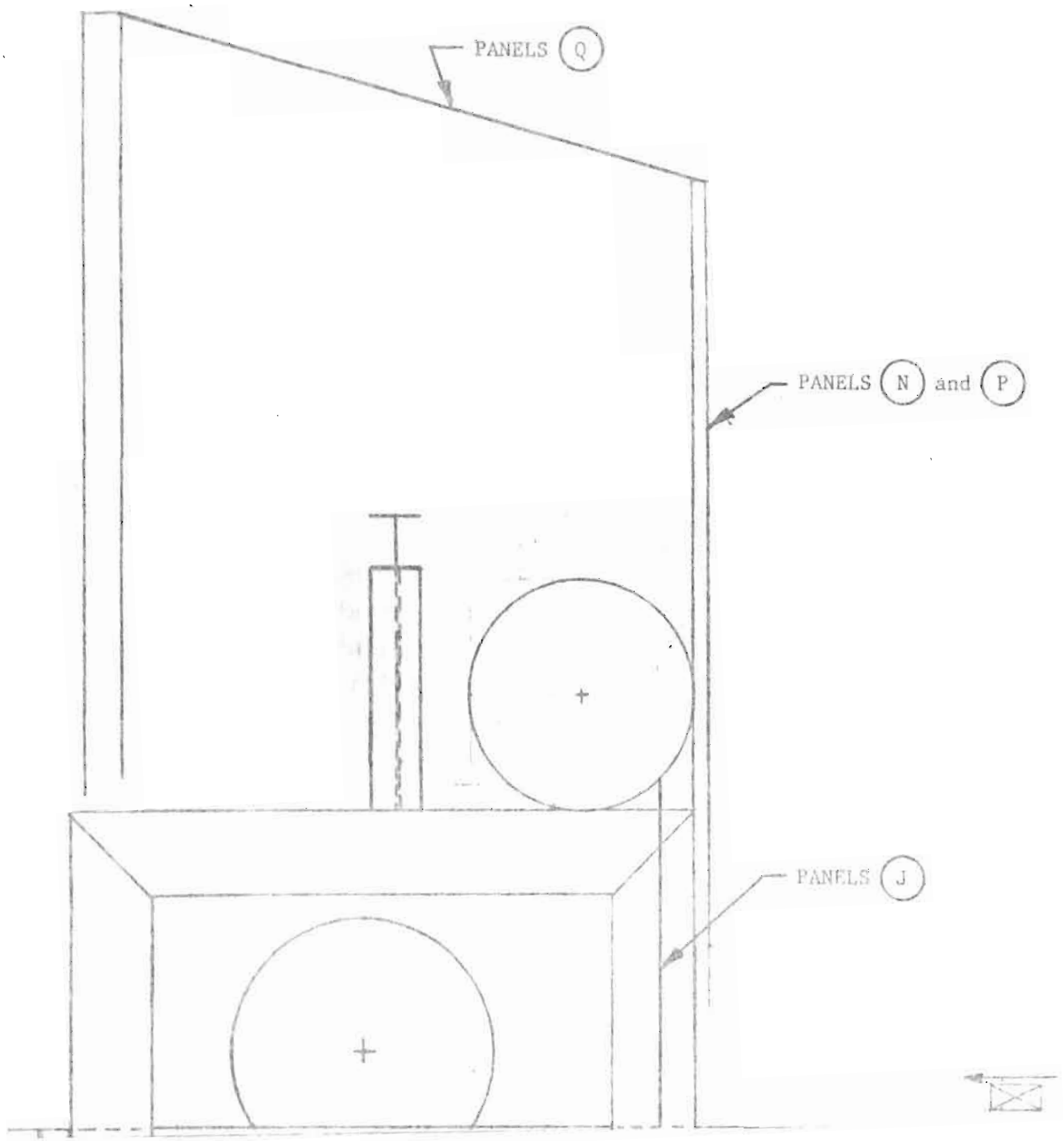
3. Low cost, ease of construction.

Please look these over yourself or have these drawings reviewed, and feel free to provide additional input. You can be of particularly valuable assistance as regards the long-term survival of the design at your mill. Hopefully, we can avoid the fate of the last "enclosure" effort at the C-N-S Trim Saw.

Sincerely

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures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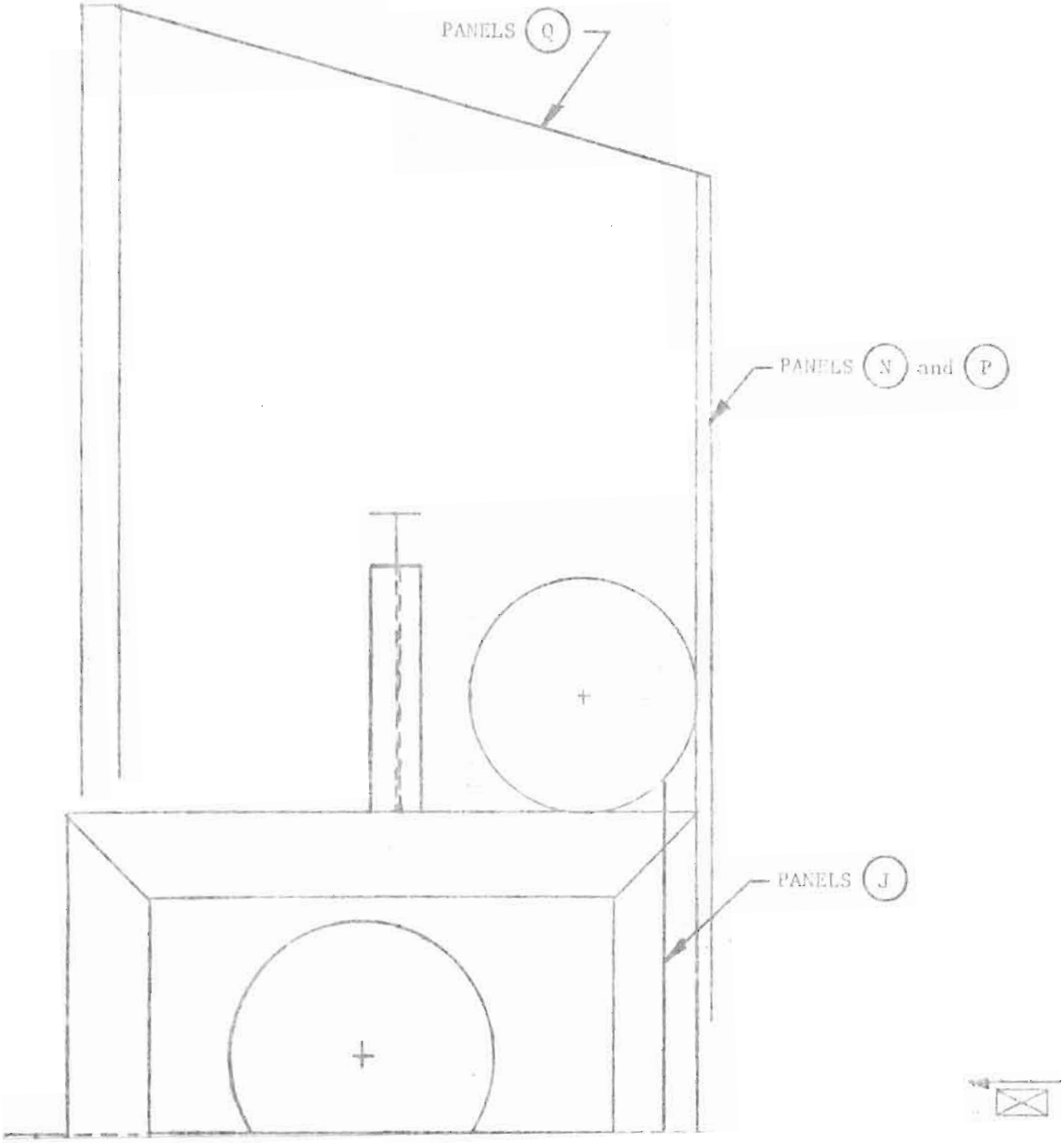
PANELS (N) and (P)
PANELS (J)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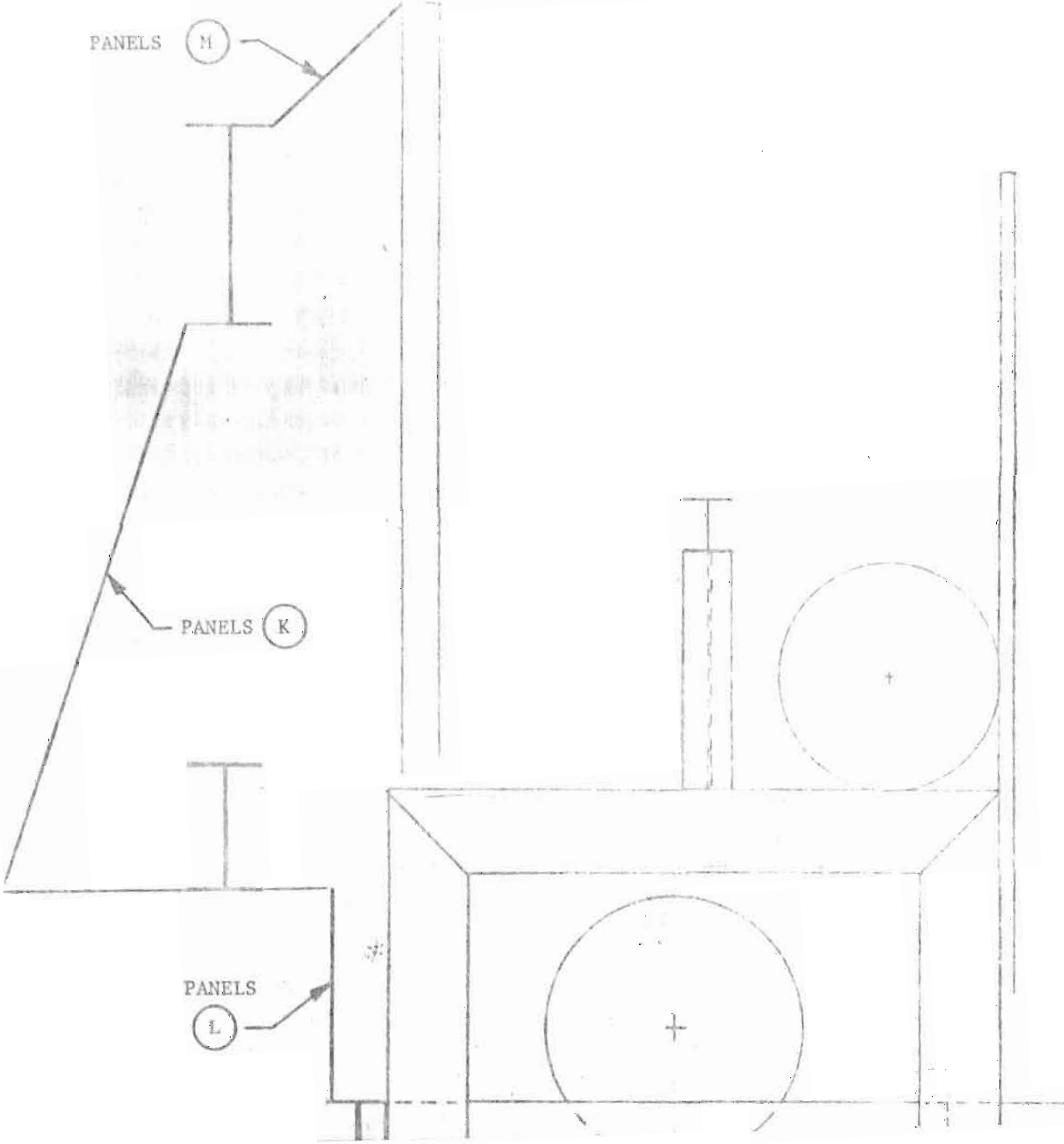
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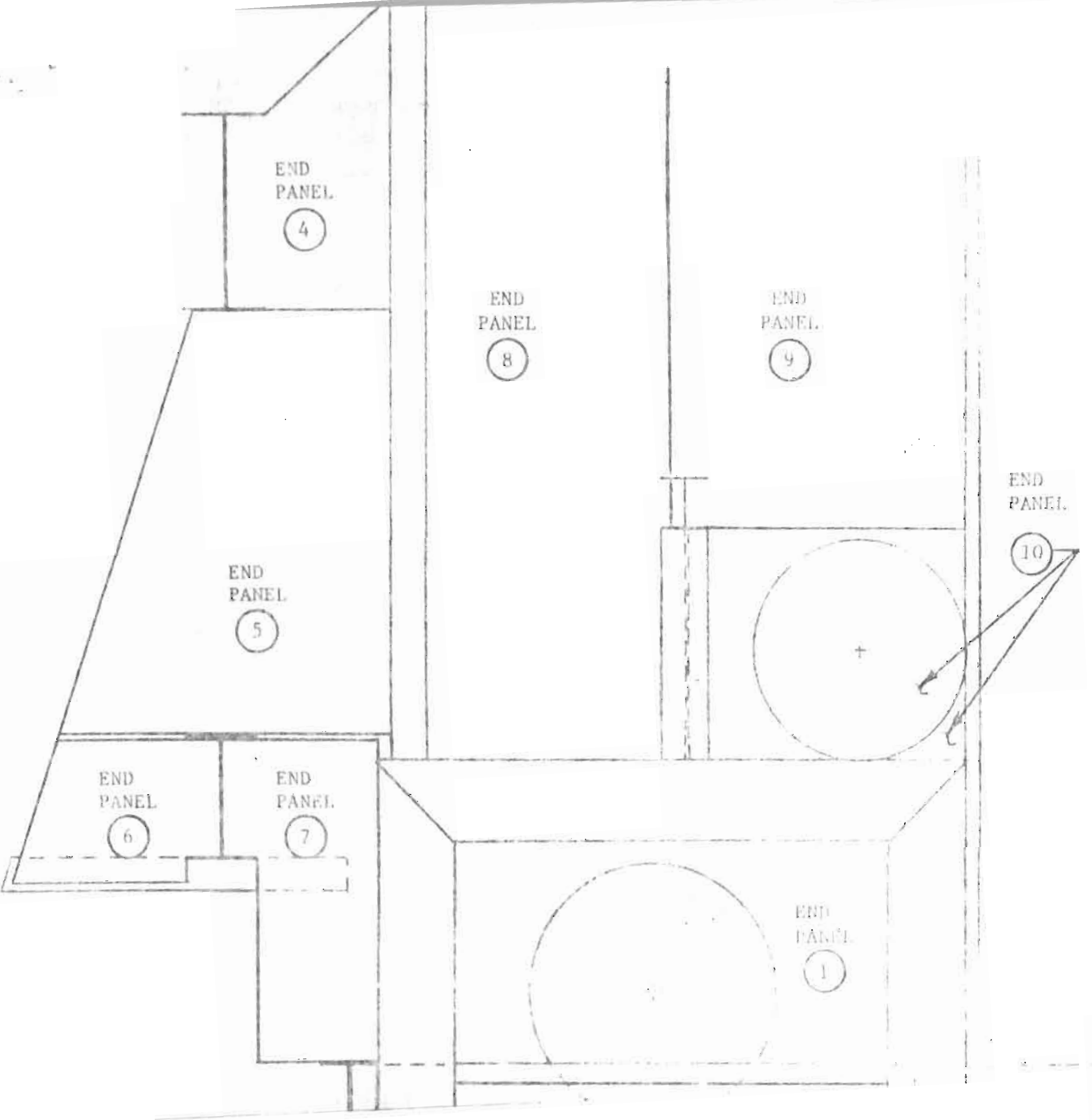
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Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION

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Central Georgia Area Office
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May 8, 1981

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Enclosed are two sets of drawings which describe the Chip-N-Saw trim saw acoustical enclosure. Again, the concept is to totally surround or "cocoon" the noise source. As we have briefly discussed, this design differs across the span of the trim saw in order to best accomplish this. On the outer end (away from operator) of the trim saw, the treatment is the same until a transition about 15' from the outer end. From there to the operator the treatment is again the same.

The drawings are grouped in sets of fifteen and seven sheets. The larger set generally describes spanwise enclosure panels and treatments. The smaller set generally describes end treatments, which are different.

I would recommend that the person(s) assigned to implement this enclosure design first STUDY THE ENTIRE DRAWING PACKAGE (BOTH SETS) THOROUGHLY. It is essential that details be planned for in this type enclosure. The people doing the work should be detail people, as even the smallest of holes can seriously jeopardize a noise enclosure. By way of example - if the area of this sheet of paper were capable of a noise transmission loss of 50 dB, then a hole anywhere in it the size of this box - ▭ - can reduce its effectiveness to 25 dB. The better the enclosure the worse this effect!

Just prior to the installation of the absorption materials (which can come after all metalwork is done, but without a significant delay) blowoff/clean/ruboff all sawdust and sawdust piles from the inside of the trimsaw area.

Some of the old, weak enclosure structure is utilized in this new design, others are not. After careful study you can see which portions of it can be removed. The main portions utilized will be the roof system and structure and one channel on the operator end.

On this, and other enclosures, you should INVESTIGATE TO SEE IF ADDITIONAL/DIFFERENT TYPE SPRINKLER SYSTEMS ARE DESIRED OR REQUIRED BY YOUR INSURER. It may be necessary to go to a Haylon or similar system inside of these enclosures. The outfeed sprinkler system on this Chip-N-Saw trim saw enclosure, you will note, has changed its relative position to the saws and possible fire hazards.

Connie is checking now on maximum temperature changes allowable for the trim saw motors. Depending on calculations based on these temperatures, some possible small changes in top panels M could be required to let heat out. In any case, MONITOR SAW MOTOR TEMPERATURES CAREFULLY WHEN ENCLOSURE IS FIRST INSTALLED. This applies, of course, to any similar enclosure of motors or controls.

The design shows hanging conveyor belting at the bottoms of several steel panels. It is essential that this area be practically, workably closed to assure effectiveness. Such belting can be utilized rather than a more expensive lead/vinyl curtain material, but it may well be a matter of finding out just what is best for you over time.

Georgia Tech now requires all faculty and staff to include a disclaimer statement with consulting work. It is given below:

> This contract work, including the drawings transmitted
> by this letter, represent the opinion of the author.
> It carries no official endorsement by THE GEORGIA
> INSTITUTE OF TECHNOLOGY.

I have made every effort to assure good, accurate dimensions for this design. It is, of course, possible that errors have crept in, especially on something of this detail. I think it is noteworthy, too, that production has not been stopped on this account while supporting dimensions and information has been gathered. Should you see an error or have a question, please do not hesitate to contact me.

Similarly, if a change (on your part) of the design or its materials is anticipated, again contact me to discuss it.

There are two small errors on previous items which I can call to your attention. See the sheet enclosed listing the Planer Mill Trim Saw Panel Sizes. The approximate length of the first panel D item should be 3'-11 1/2"/3'-11 3/4" instead of 8'-11 1/2"/8'-11 3/4". This sheet was included in a letter to you of October 29, 1980. Secondly, in the listing of equivalent task levels sent out with my letter to you of May 9, 1980, the levels for Task 46, CNS Operator, C6, Cutting (in Booth) should be <90 and 86.0. The levels for Task 47, CNS Edger Op., C7, Cutting, should be 100.8 and 100.8 (same). The levels for Tasks 46 and 47 got reversed. I had occasion to realize these errors and wanted to correct them.

I am, needless to say, glad to finally finish the Chip-N-Saw trim saw design. It will, I think, do a good job for you and your workers. The national consulting firm of Bolt, Beranek & Newman, Inc. has estimated that a trim saw enclosure similar to this one in weight and materials can effect a noise reduction of 14 - 19 dBA for the operator. This is the maximum reduction for which we could hope. My measured equivalent level for the CNS trim saw operator was 100.3 dBA, and for the helper it was 98.9 dBA.

Work will now proceed on the design of an infeed tunnel for the chipper which is between the CNS and Band Mill. You have seen very preliminary drawings on this already. I have been around it enough to realize just what kind/sizes of material does go through it and hope that we can accommodate them.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures
cc: Mr. Sherman L. Dudley

GENERAL DESCRIPTION OF EACH SHEET OF THE NOISE ENCLOSURE DESIGN DRAWINGS FOR THE CHIP-N-SAW TRIM SAW,

DRAWING SET 1 THRU 15 of 15

Sheet No.	General Description
1 of 15	Assembly view of Panels Ⓐ, Ⓑ, Ⓒ, Ⓓ (outer, lower, infeed area)
2 of 15	Details of Panels Ⓐ, Ⓑ
3 of 15	Views of Panels Ⓐ, Ⓑ, Ⓒ, Ⓔ, Ⓕ installed, View of outfeed area, typical section of span
4 of 15	Detail and assembly view of Panel Ⓖ (triangular)
5 of 15	Details and assembly information on Panels Ⓓ, Ⓔ, Ⓕ
6 of 15	Details and assembly views of Panels Ⓗ, Ⓘ, Ⓙ
7 of 15	Details and assembly view of Panel Ⓙ (upper infeed at lumber)
8 of 15	Detail of outfeed support structure, especially for Panels Ⓚ, Ⓛ, Ⓜ, Ⓡ
9 of 15	Details of Panels Ⓛ, Ⓜ
10 of 15	Spanwise view and assembly details of upper outfeed area
11 of 15	Detail of Panel Ⓠ and section of Panel Ⓛ
12 of 15	Upper infeed spanwise view, assembly details for Panels Ⓝ, Ⓟ
13 of 15	Structure for upper infeed treatment above larger beam
14 of 15	Details of roof treatment and Panels Ⓠ installation
15 of 15	Detail of Panel Ⓢ installation (between infeed end stop and end of trim saw)

GENERAL DESCRIPTION OF EACH SHEET OF THE NOISE ENCLOSURE DESIGN DRAWINGS FOR THE CHIP-N-SAW TRIM SAW,
DRAWING SET 1 THRU 7 of 7

Sheet No.	General Description
1 of 7	Detail of outer end (away from operator), especially End Panels ④, ⑤, ⑥, ⑦
2 of 7	Detail of End Panel 5 and assembly details of End Panels ①, ②
3 of 7	Detail and assembly view of End Panel ③, down into scrap conveyor on outer end
4 of 7	Detail and assembly views of other outer End Panels, especially End Panels ⑧, ⑨, ⑩
5 of 7	Detail and assembly view of End Panel ⑪ into scrap conveyor on operator's end
6 of 7	Overall view of operator's end treatment, especially End Panels ⑫ thru ㉒
7 of 7	Section of operator's end upper treatment, especially End Panels ⑰, ⑱, ⑲; detail and assembly view of Panel Ⓣ

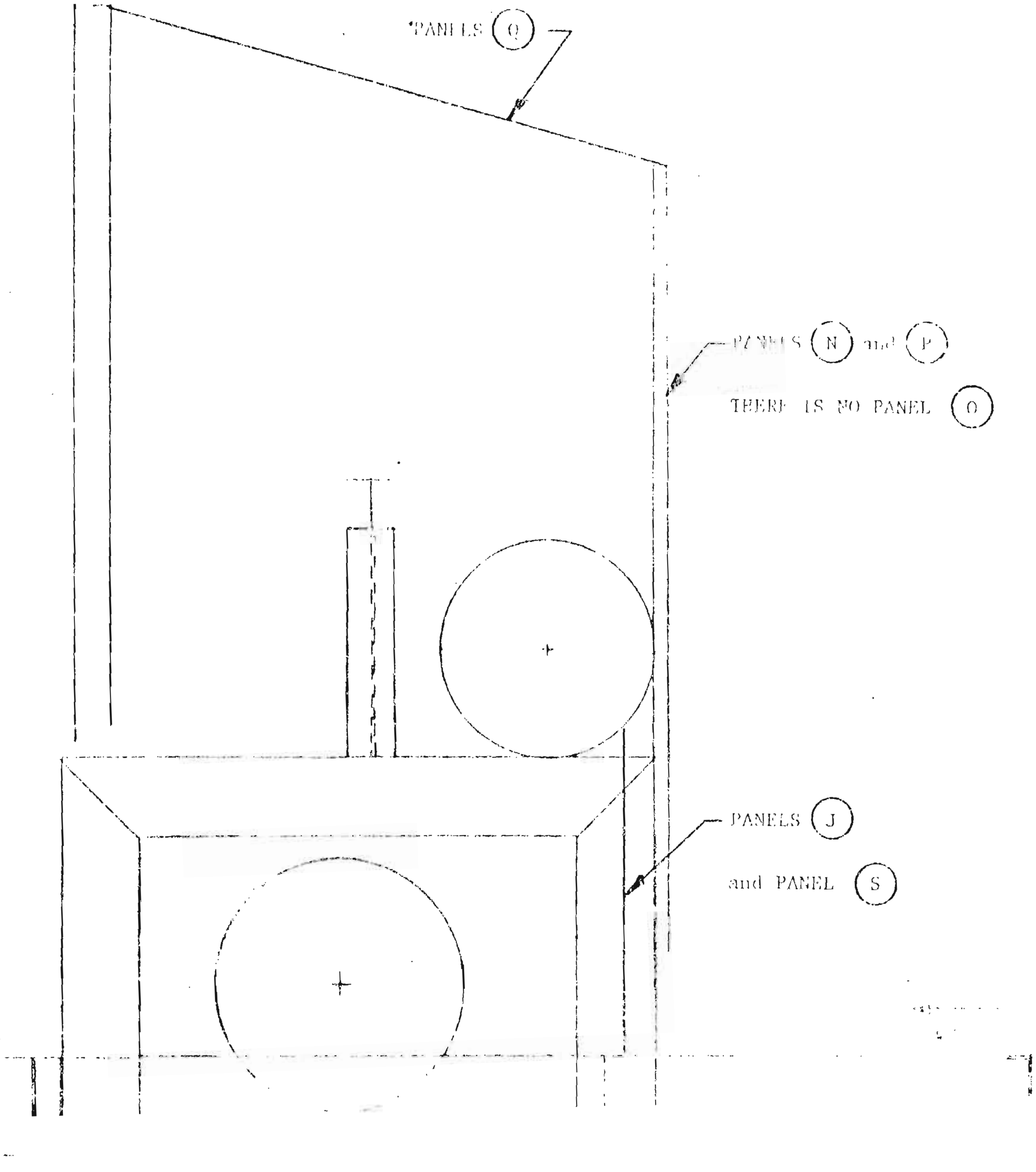
CONTINENTAL FOREST INDUSTRIES (Mill No. 152)

Planer Mill Trim Saw,
Top Rear Enclosure Access Panel Sizes

PANEL I.D.	SIZE		NUMBER NEEDED	COMMENTS
	APPROX. WIDTH	APPROX. LENGTH		
A (upper infeed)	1'-11½"	3'-11½"/3'-11 3/4"	5	Repeated panels at nominal 4' spanwise spacing
	1'-11½"	3'-10 1/4"	1	Odd panel on operator's end
	1'-11½"	1'-7½"	1	Odd panel on hog end
B (top)	2'-7 3/4"	3'-11½"/3'-11 3/4"	5	Repeated panels at nominal 4' spanwise spacing
	2'-7 3/4"	3'-10 1/4"	1	Odd panel on operator's end
	2'-7 3/4"	1'-7½"	1	Odd panel on hog end
C (upper outfeed)	3'-6½"	3'-11½"/3'-11 3/4"	5	Repeated panels at nominal 4' spanwise spacing
	3'-6½"	3'-10 1/4"	1	Odd panel on operator's end
	3'-6½"	1'-7½"	1	Odd panel on hog end
D (bottom outfeed)	1'-8½"	3' 3'- 8'-11½"/8'-11 3/4"	5	Repeated panels at nominal 4' spanwise spacing
	1'-8½"	3'-3 3/4"	1	Odd panel on operator's end
	1'-8½"	1'-1"	1	Odd panel on hog end

EQUIVALENT TASK LEVELS

Task No.	Task Description	Task Levels	
		90 dBA Cutoff	85 dBA Cutoff
30	Package Man, P13, Operating	<90	87.1
31	Package Man, P13, Idle, Nearest Puller	<90	85
32	Ticket Man, P14, Banding	<90	87.7
33	Ticket Man, P14, Marking	<90	<85
34			
35	Planer Outfeed Lift Op., P15 & P16, Cycle	<90	86.6
36	RR Car Tie Down, P17-18, Tieing	<90	<85
37			
38	Round Table Man, P19, p/u at Table	95.6	95.6
39	Round Table Man, P15, p/u at Trim Saw	95.6	95.6
40			
41			
42	Planer Mill Sup., P21, Office in Trailer	<90	<85
43	Outside Dry Kilns at Outfeed End	<90	<85
44	Planer Mill Maintenance Man, M12, at Work Table	96.5	96.5
45	Stick Man, P1, p/u at Conveyor	<90	<85
46	CNS Operator, C6, Cutting (in Booth)	100.8	100.8
47	CNS Edger Op., C7, Cutting	<90	86.0
48	CNS Trim Saw Op., C8, Cutting	100.3	100.3
49	CNS Trim Saw Op. Helper, C9, Cutting	98.9	98.9
50	CNS Operator, C6, Idle (in Booth)	<90	<85
51	CNS Edger Op., C7, Cleanup and Idle	94.9	94.9
52	CNS Trim Saw Op., C8, Idle	98.0	98.0
53	CNS Trim Saw Op. Helper, C9, Idle	98.4	98.4
54	No. 1 Tipple Op., C10, Operating	96.8	96.9
55	No. 2 Tipple Op., C11, Operating	92.1	92.7
56	Band Mill Edger Op. Helper, B2, Idle	92.0	92.0
57	Band Mill Edger Op., B3, Idle	92.0	92.0
58	No. 2 Tipple Op., C10, and Helper, C11, Idle	<90	<85
59			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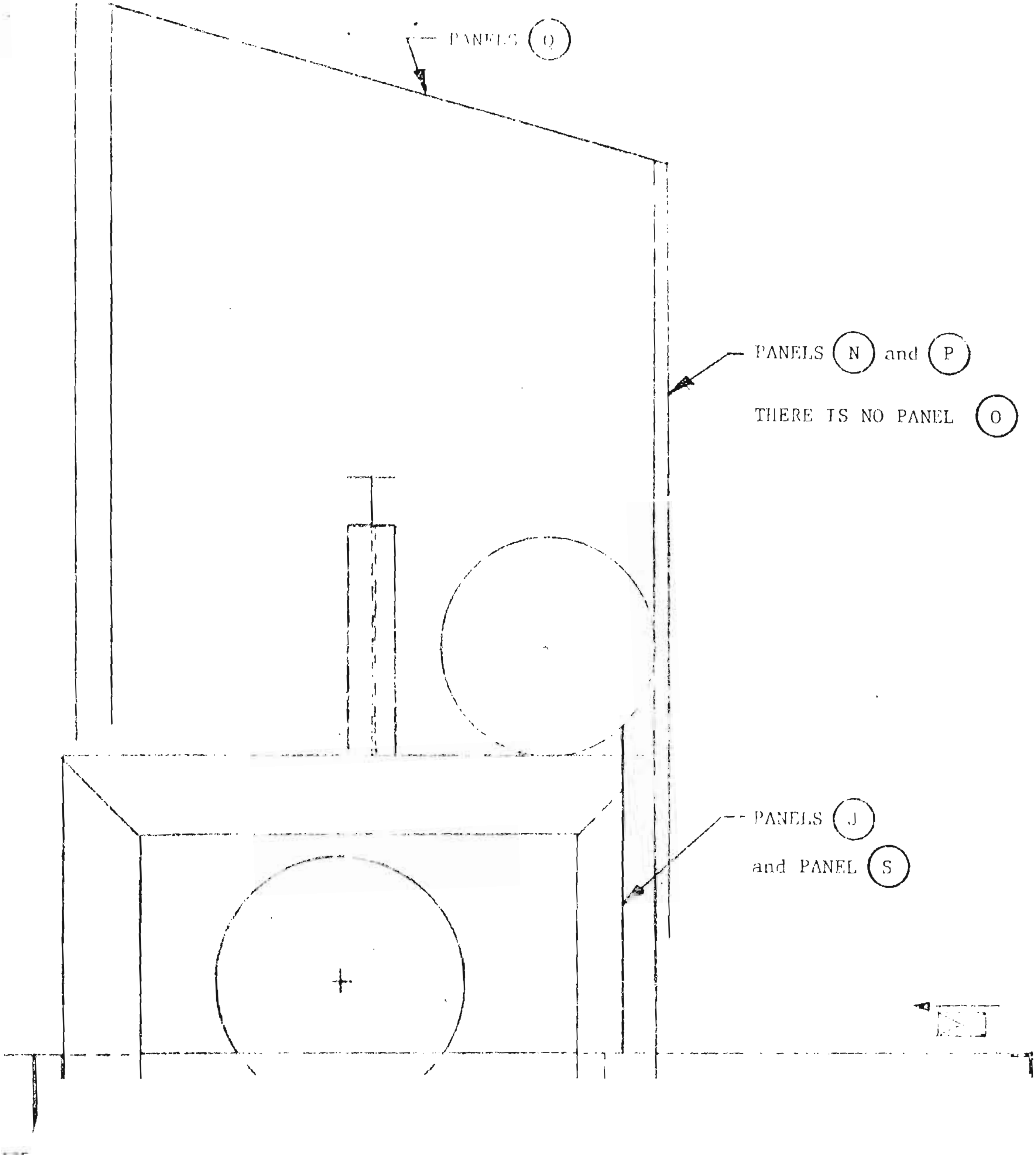
PANELS (J)
and PANEL (S)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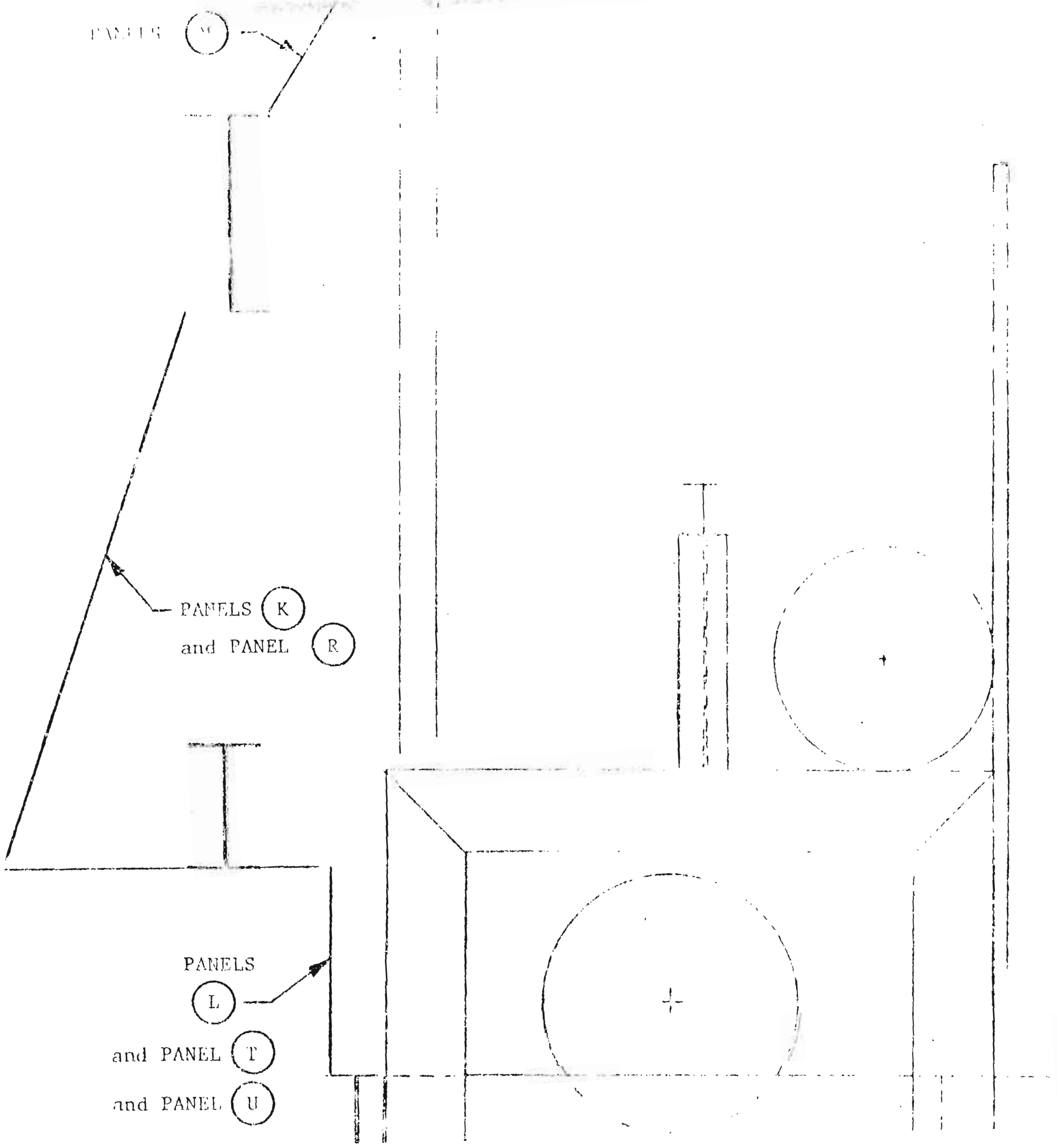
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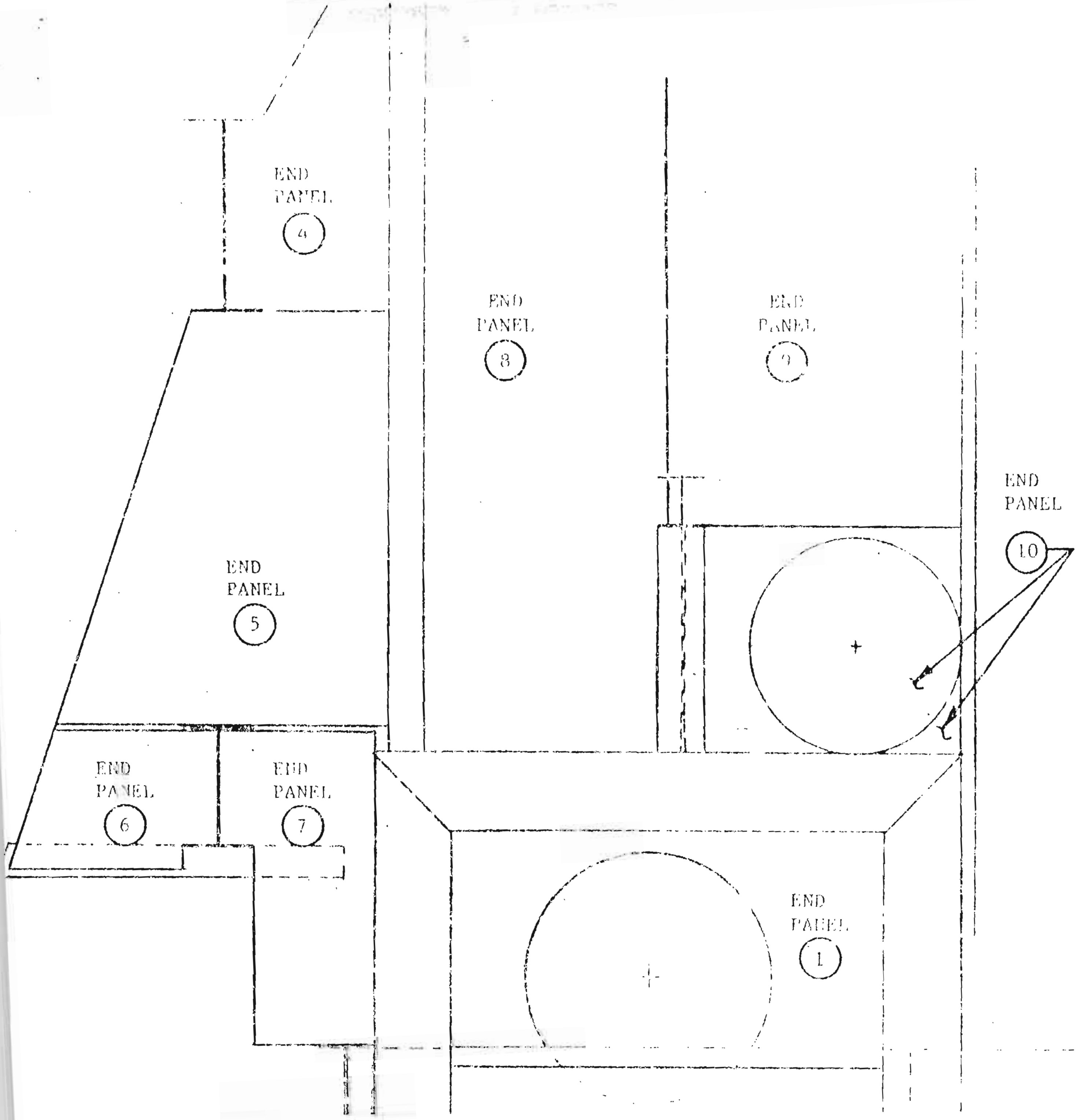
and PANEL Ⓣ
and PANEL Ⓤ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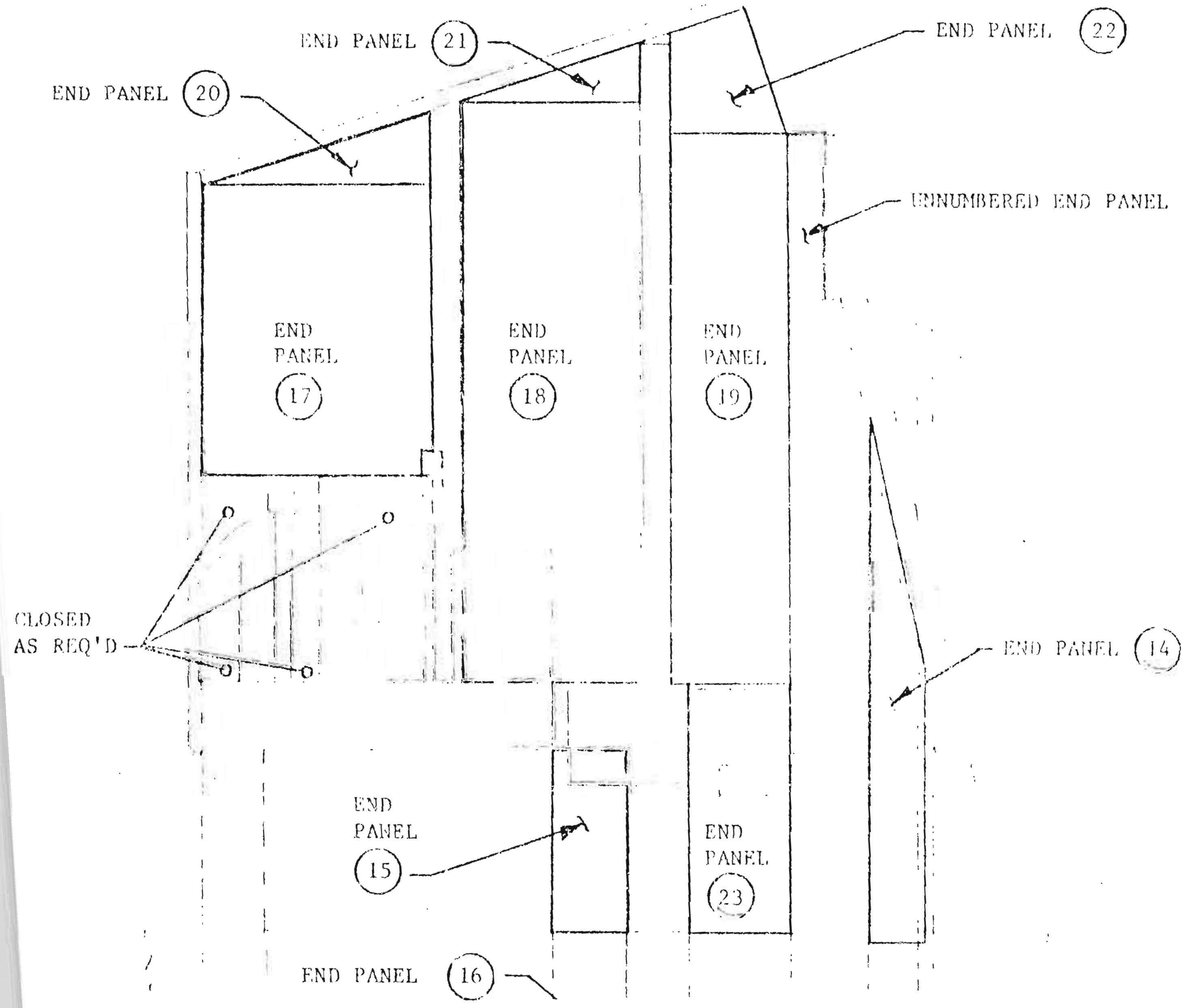
END PANEL (21)
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END PANEL (20)
UNNUMBERED END PANEL
END PANEL (17)
END PANEL (18)
END PANEL (19)
CLOSED AS REQ'D
END PANEL (14)
END PANEL (15)
END PANEL (23)
END PANEL (16)

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION

INDUSTRIAL EXTENSION DIVISION
Central Georgia Area Office
1818 Forsyth Street
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Macon, Georgia 31208
912/744-6190

August 31, 1981

Mr. James W. Hankla
Ware county Board of Health
604 Riverside Drive
P. O. Box 1946
Waycross, GA 31501

Dear Jim:

Enclosed for your review and information are:

1. A copy of a recent Wall Street Journal article relative to the proposed OSHA noise amendment.

2. Copies of entries from the most recent BNA review, including a full text of the noise amendment to §1910.95 as amended.

I do hope that these materials are useful to you.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION

INDUSTRIAL EXTENSION DIVISION
Central Georgia Area Office
1818 Forsyth Street
Suite 105
P. O. Box 5105
Macon, Georgia 31208
912/744-6190

June 4, 1981

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Enclosed are two identical blueprint sets which describe the design for the chipper infeed acoustical tunnel for your Fulghum chipper, which is between the band mill and the Chip-N-Saw mill. These are the final drawings of those which I sent you for review and comment in the preliminary stages on April 27th.

As you know, estimates of this chipper's noise contributions were done (see February 18, 1981, letter enclosure) which indicated high 80 and low to mid 90 contributions at several worker stations due to the chipper alone. A tunnel seemed to be the most expedient way to obtain the kind of moderate reductions necessary here. It would be required anyway if a total or partial enclosure were to be installed around the chipper. I think, however, that this tunnel alone can do the job. Fortunately, the chipper attendant is only infrequently at the mouth.

I made quite a few noise control recommendations verbally to Reimer Bland on August 12, 1980, in Hazlehurst. Among them was a suggestion that you close several open areas which afford a line-of-sight view of the chipper. I am particularly referring to openings which exist in the band mill under the trim saw infeed conveyor, rather than locations like the tally man who is, of course, totally exposed to the chipper noise. Close these holes significantly with 1/2" - 3/4" plywood or with light gauge sheet metal.

The tunnel design is meant to be as strong as possible to withstand its extremely rough duty. Should you feel that materials are not heavy enough, then let me know. The top panels which are hinged are made of sixteen gauge material and protected by expanded metal. They need to be light enough to lift conveniently, too. You will want to devise some sort of latch to hold each of these top, hinged panels up when necessary.

Side panels will hopefully stay in place without any type hold downs. They may require a way to be kept up temporarily for periodic cleaning, however.

Periodic checks of the absorption panels should prove sufficient here without perforated metal or other protection, particularly since the dust is somewhat more settled than at saws. Again, monitor the situation particularly closely for several weeks after implementation.

As before, remember upon implementation that all holes are to be minimized. Prior to tunnel installation clean up the entire area good. Note that two or three holes in the vibrating conveyor should be patched so they don't allow so much pile up of sawdust on the ground and make more frequent cleanup necessary.

The disclaimer statement mentioned in my letter of May 8, 1981, is applicable to this work, too.

The tunnel is sized as accurately as possible. The height of the lower portion should be maximized as possible after determining just how high the return rollers of the conveyor above can go. The lengthwise distance of the "plenum" area near the mouth could be enlarged some if desired (increasing 2'-6" dimension of Sheet 1 of 12). The "lift up" square tube on the outer end near the I-beam is intended to better allow the chipping of longer materials. Large, long logs and really big material would best be cut down by chain saw before going in.

Work is now ongoing on the design of the enclosure for the band mill trim saw.

Please do not hesitate to call if you have questions about these materials.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures
cc: Mr. Sherman L. Dudley

GENERAL DESCRIPTION OF EACH SHEET OF THE INFEED TUNNEL DESIGN DRAWINGS FOR THE FULGHAM 60-8K CHIPPER

SHEETS 1 THRU 12 of 12

Sheet No.	General Description
1 of 12	Side and top views of support structure
2 of 12	View of end away from mouth
3 of 12	Views of side panels ⑤, ⑥, ⑦, ⑧, and top panel ③, in place
4 of 12	Views of "lift up" tube at I-beam and right side near mouth
5 of 12	Detail of panel ②, some of which is applicable to other panels
6 of 12	Detail of panels ① and ④, as well as I-beam area
7 of 12	Chipper mouth closure detail, including panel ⑤
8 of 12	Lengthwise section of structure for clarification and chipper drive shaft area
9 of 12	Detail of panels ⑨, ⑩, ⑪, ⑫, and ⑬ installations on sides of mouth area
10 of 12	Detail of underneath closure end panels ⑭ and ⑮
11 of 12	Geometric construction which may be helpful in the fabrication of cover pieces at the mouth, left hand side
12 of 12	Geometric construction which may be helpful in the fabrication of cover pieces at the mouth, right hand side

Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION

INDUSTRIAL EXTENSION DIVISION
Central Georgia Area Office
1818 Forsyth Street
Suite 105
P. O. Box 5105
Macon, Georgia 31208
912/744-6190

September 8, 1981

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Enclosed are two identical blueprint sets which describe the acoustical enclosure design for your Band Mill Trim Saw. These are the final drawings of those which we looked at in Hazlehurst on August 11, 1981.

Estimates of this trim saw's noise contributions indicated levels in the mid to high 80's at the nearby tipple operator and low to mid 90's at the talley man and nearest green sorters. The operator's levels on which these levels were predicated were 96.5 dBA (idle) and 100.5 dBA (cutting) as calculated from measured data for this saw only running. The data dates for these measurements were 2/28/80 and 3/7/80. These estimates eliminated the possibility of an operator's personnel cab (even if it were workable) since other people in the area are significantly impacted by the saw's noise. See enclosure.

The concept utilized in this design is, again, to totally surround or "cocoon" the noise source. This design, unlike that of the last one for the Chip-N-Saw Trim Saw, does not vary throughout most of its span. Seven square steel tubing supports are spaced evenly across the span of the 24' long circular beam. An additional such support is also located on the operator's end of the conveyor chain support channels. Note these facts on Drawing Sheet 3 of 11 to clarify the spacing.

Please take special note of the number 2) note on Drawing Sheet 2 of 11. It discusses the possible improvement of infeed handling.

Special treatment was required on the operator's end to allow use of the existing walkway on the outfeed side and to adequately enclose the sources near the operator.

Again, I would recommend that the person(s) assigned to implement this enclosure design first STUDY THE ENTIRE DRAWING SET THOROUGHLY AND READ ALL NOTES. It is essential that details be planned for in this type enclosure. Avoid all unnecessary holes through quality construction!

Just prior to the installation of the absorption materials (which can come after all metalwork is done, but without a significant delay) blow off/clean/rub off all sawdust and sawdust piles from the inside of the trim saw area. Removable absorption panels facilitate cleaning maintenance.

Note that some sections of the existing enclosure such as the cable handles for manual saw engagement are to be removed. Note a suggestion on Sheet 11 of 11 that the small scrap chute on the outer end of this trim saw be reangled to eliminate having to constantly go into the enclosure for clean out.

On this, and other enclosures, you should INVESTIGATE TO SEE IF ADDITIONAL/DIFFERENT TYPE SPRINKLER SYSTEMS ARE DESIRED OR REQUIRED BY YOUR INSURER. It may be necessary to go to a bottled Haylon or similar system inside of these enclosures.

MONITOR SAW MOTOR TEMPERATURES CAREFULLY WHEN ENCLOSURE IS FIRST INSTALLED. As a note on the drawing set says, you can prop open the panel set Ⓒ to allow heat to escape out the top, if necessary.

Find out through experience just what will work best for your people to close in the holes at the infeed and outfeed areas of the lumber lines. Use it and keep it maintained. See Sheet 5 of 11.

The disclaimer as included in my letter of May 8, 1981, was not required, as it turns out, but was intended for anyone "moonlighting" and also working for Tech. Of course, that is not the case with this work.

I have made every effort to assure good, accurate dimensions for this design. It is, of course, possible that errors have crept in, especially on something of this detail. More detail was incorporated into this and previous designs since your statement, at one point, indicating delays in implementation past the contract ending date. Should you see an error or have a question, please do not hesitate to contact me. David Poss, II, PE, of our Augusta office, has been involved in the review of these enclosure designs, especially as regards structural portions. I recall that your original intent was to have Savannah staff, through Bill Nagle's office, review these designs before implementation. This would probably still be a good idea. I would welcome their comments.

We discussed the severe tendency of the Band Mill Trim Saw to throw blocks. This steel-structured enclosure is heavy enough to allow you, I think, to continue to use large hanging lengths of expanded metal (but now hanging on the inside) to protect the interior of the enclosure and stop blocks. Absorption panels also provide a means to mount: a) perforated metal sheets for the protection of absorption material, and b) expanded metal sheets as thought helpful to supplement the large ones mentioned above.

A good portion of the time involved for this and other enclosure designs has been to accurately describe existing equipment since prints were not available. Materials recommended may be substituted with materials of similar acoustical characteristics.

Work will now proceed in finalizing the initial exposure report from data previously gathered. September 30, 1981, is my target date for completion of this work.

Sincerely,

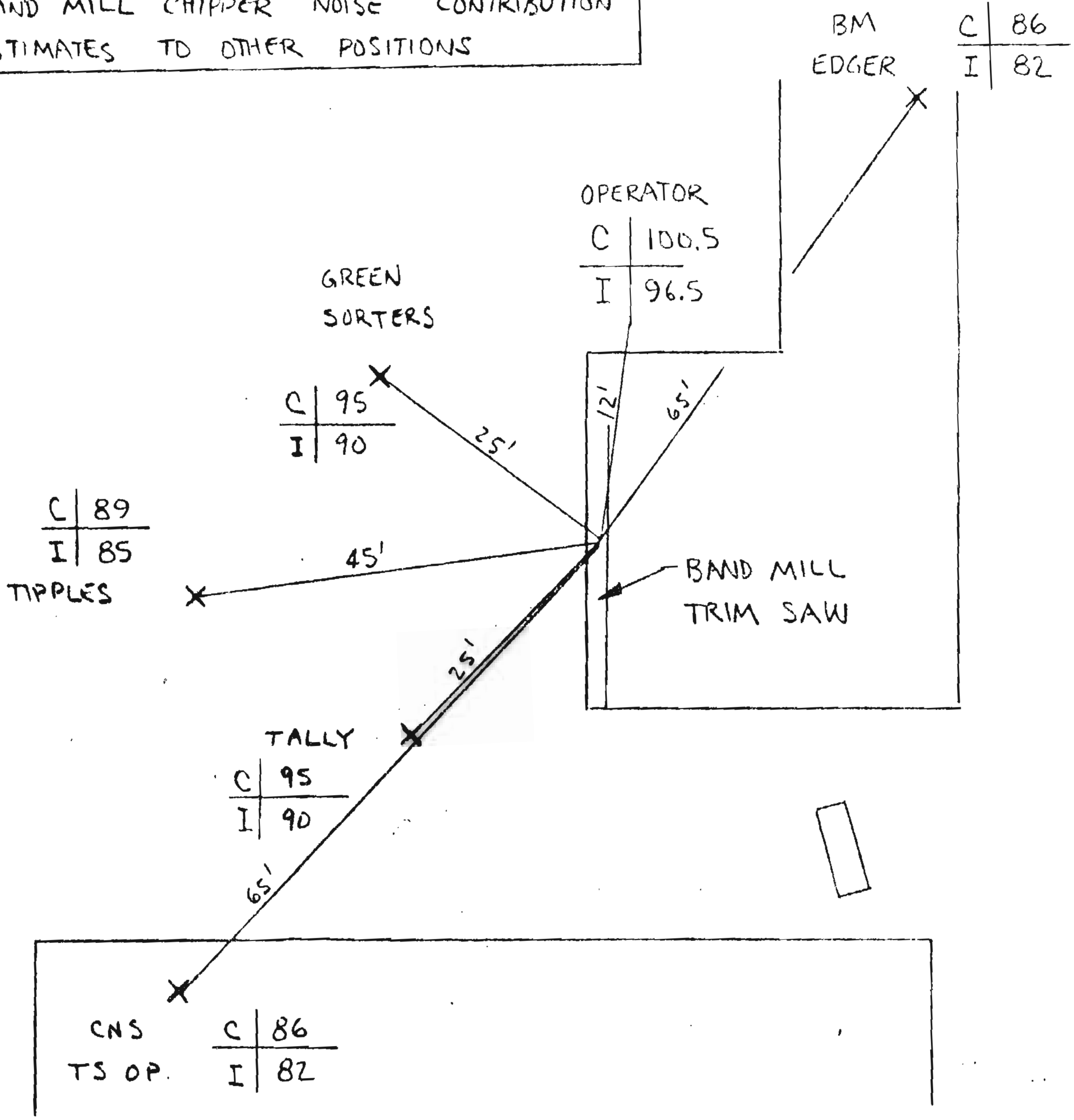
George H. Lee, Director
Central Georgia Area Office

GHL:msz
Enclosures
cc: Mr. Sherman L. Dudley

GENERAL DESCRIPTION OF EACH SHEET OF THE NOISE ENCLOSURE DESIGN DRAWINGS FOR THE BAND MILL TRIM SAW,
DRAWING SHEETS 1 THRU 11 of 11

Sheet No.	General Description
1 of 11	Views of existing trim saw ends, including a few notes relative to enclosure installation.
2 of 11	View of typical mid-span structure, but including other items. Trim saw panels I.D. Summary. Several notes pertaining to total enclosure.
3 of 11	Span-wide view of band mill trim saw from infeed area showing top support structure and details on lower infeed panels.
4 of 11	Partial view at operator's position of added structure necessary to accommodate added panels.
5 of 11	Details of Panels Ⓐ thru Ⓕ.
6 of 11	Views of upper infeed area of operator's end.
7 of 11	Views of upper outfeed area of operator's end.
8 of 11	Views of lower outfeed area of operator's end.
9 of 11	Top view of outfeed conveyor area and associated sections.
10 of 11	Panel Assembly ⑪ Detail and various installation views and sections.
11 of 11	Outer end view (opposite operator) and view of lower infeed area on outer end. Various end panels and installation details.

BAND MILL CHIPPER NOISE CONTRIBUTION ESTIMATES TO OTHER POSITIONS



C ~ dBA LEVEL DUE TO BAND MILL TRIM SAW <u>ONLY</u> CUTTING
I ~ dBA LEVEL DUE TO BAND MILL TRIM SAW <u>ONLY</u> IDLING

ESTIMATES OF LEVELS AT POSITIONS SHOWN BASED ON DATA OF 2-28 & 3-7-80. LEVELS RECORDED AT OPERATOR'S POSITION & SOUND POWER CALCULATED FROM THIS DATA. FREE FIELD ASSUMED. Q = 2 ASSUMED. ACOUSTIC CENTER OF TRIM SAW ASSUMED TO BE AT 12' FROM OPERATOR IN CALC. & APPROX MIDDLE OF BLDG. ABOVE.

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INDUSTRIAL EXTENSION DIVISION
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912/744-6190

September 25, 1981

Mr. Jerome B. Rogers,
Plant Production Manager
Continental Forest Industries
P. O. Box 416
Hazlehurst, GA 31539

Dear Jerome:

Attached is the original and one copy of the Employee Noise Exposure Profile. Its contents are discussed in the first several pages of the report. Summary dosage and task level tables will be of the most interest to you. It also contains raw noise level data strips and other data reduction forms.

As originally discussed, this survey will give you a baseline of task levels and doses to which comparisons can be made once the controls and designs previously supplied have been implemented. As of this date, I can recognize three changes in the noise climate since this report's base data measurements were made: (a) the installation of the Energex system hog in the planer mill area; (b) a change in log deck equipment near kickout No. 1; and, (c) the currently ongoing installation of an enclosure around the planer infeed mechanism.

For the remainder of this letter, I would like to make comments upon the various areas of the plant from a noise perspective.

I am generally very pleased with the workmanship involved in the construction of the new planer infeed mechanism enclosure. While favorable comments have been heard from surrounding workers, you can expect the most benefit for the infeeder when the Plexiglas or Lexan shield is finally installed and other large holes in the area immediately adjacent to this position have been closed. I note that he is working from a position further out and this will, as documented before, be of assistance. I've noted that the absorption material was placed inside the enclosure with the Kraft backing toward the noise source, instead of away from it. I realize that the Energex system ash is a current problem. With this in mind, then, I think this was a wise thing to do, even though noise attenuation due to this orientation is somewhat reduced.

I understand that in order to achieve satisfactory make-up air, the doors to the planer enclosure must be left open, and it must be cleared several times a day. It will probably be necessary to provide more capacity in the blower air system before the planer enclosure can do its job fully. We had talked about the possibility that the new infeed enclosure (coupled with adequate blower capacity) could help to alleviate the ash problem. This would mean that a make-up air tunnel could be supplied on the outer end of the new enclosure. A make-up air tunnel is just a tunnel of sufficient length (and turns) lined with absorption materials similar to those in the new infeed enclosure. Surface velocities should not be so high as to blow away the absorption, so the make-up air tunnel should have a large enough cross-sectional area to prevent this. An ultimate type of absorption material would be that as has been recommended for the trim saw enclosure of 1" ceiling board.

Following recommendation implementation concerning the planer enclosure, its window should be upgraded, as well as the sealing at the doors. Doors must be on continuous hinges or otherwise attached more securely through the enclosure's walls. The outfeed tunnel previously designed, may require some limited heavy sheet metal protection on the inside of its top surface, as I had noticed that long lumber tends to kick up as it goes onto the trim saw infeed conveyor. Recall that a funnel-shaped outfeed tunnel entrance was also discussed.

The door to the planer mill office could be made heavier and sealed better. This would allow better speech intelligibility on the part of the shipping clerk as he has to use the phone quite a bit. I understand that you are thinking of noise control for the new Energex hog, so this will help him, too. Fix the window at the planer tehcnician's working area.

Reimer Bland and I discussed controls for the planer trim saw block hog. They consist of totally repairing the existing wall and building another at 90° to it at the large opening. Sheet metal and conveyor belting should also be hinged over the vibrating conveyor to the hog's infeed mouth. Maintenance should weld together various pieces of vibrating sheet metal located at the hog's mouth. Scrap or extra absorption materials could be added to the hog side of the above mentioned walls if protection from the weather could be assured.

The installation of "Less Noise" saws in all trim saw and other machinery remains a possibility. Refer to my letter of October 29, 1980, to you providing information whereby you may talk to Mr. Bill Skelton, Manager of Chicago Mill & Lumber, Tallulah, Louisiana.

Mr. Skelton could answer operational questions which you might have concerning these type blades.

In the band mill area, I understand that you plan to replace the existing band mill edger with another newer and hopefully quieter type edger. Noise-wise, this change should favorably affect the feeder and helper of the edger more than any other band mill worker.

The lines-of-site from the band mill area to the chipper area should be, as discussed previously, closed up with plywood or sheet metal attached to the conveyor support structures or the floor. This will minimize chipper noise impact to the band mill area, both now and after chipper control treatment implementation.

The band mill sawyer operator's booth should be repaired continuously. The air conditioning unit on the top of this booth is in disrepair and should be fixed. It would be best if it were of a heat pump type so that both cooling and heating could be supplied. This would better encourage the sawyer to close up the cab during all times of the year. The window which slides on the infeed side of his cab should be kept clean and to minimize scratches could subsequently be replaced with Lexan or other tough type plastic. The metal track area in which this window slides needs bending out to allow it to close.

Similarly, the No. 1 kickout operator's booth should be upgraded to its previous condition and a heat pump installed to encourage full use of the booth.

Air noise continues to be a problem throughout the plant in spite of a listing of May 15, 1980, concerning several areas which were severely impacted by air exhaust and could be significantly improved with the use of silencers and continuing monitoring by maintenance. This is especially true for the CNS edger operator, the No. 1 kickout operator, and the tipple operators (which impact sorters). The CNS edger instances of air exhaust would best be piped away, under the building, and then silenced.

The several booths provided for workers such as the Chip-N-Saw operator, the slashers, and the crane operator should be maintained at least to the level of existing conditions. Opportunities exist for upgrading in several portions of these booths, primarily replacement of existing cracked or broken glass or plastic, better seals, and springs or automatic door closers to help assure their proper use.

It was my hope that controls implementation could have proceeded as recommendations were provided beginning in May 1980. This would have been ideal, as it would have provided time for reevaluation at problem areas, after the primary sources were treated. This was especially a hope for the Chip-N-Saw area, following treatment of the trim saw there and specifically as regards the CNS edger operator after trim saw and exhaust air treatments.

There are several suggestions I would like to make, generally mentioned in order of their implementation, which should be done to lower the CNS edger operator's level and dosages. First, air exhaust should be silenced as suggested above.

The CNS mill area was estimated to be rather "hard" (approximately 800 sabins) acoustically. This would indicate that the edger operator would probably benefit by area absorption to reduce level contributions he receives from further away sources such as the trim saw. This is not always the case. I would start with treatment of an area from knee height to 10' or more above the floor in the corner in which he stands. Go several feet past him to either side. Alternatively, install a partial, three-sided plywood/Lexan booth with a roof. Line its interior with absorption materials. Such materials might be similar to either the Owens-Corning 1" ceiling board recommended for the trim saw, or the 3 1/2" batting as for the planer infeed mechanism. The ceiling board would require less long term maintenance or replacement.

Ultimate treatment, after other methods listed below, could include the addition of (room) area absorption with the goal of raising the room's overall absorption levels to at least 2-3 times existing levels. This would mean a minimum of 2,000 sq. ft. of the above mentioned absorption. This treatment's cost/benefit would best be assessed after other controls have been implemented. Except during the winter, the best way to "add absorption" is to open up walls to the outside, such as the back wall nearest the edger operator work station. Open windows are the best possible type of absorption.

Thirdly, upgrade the CNS edger enclosure already in place. This means:

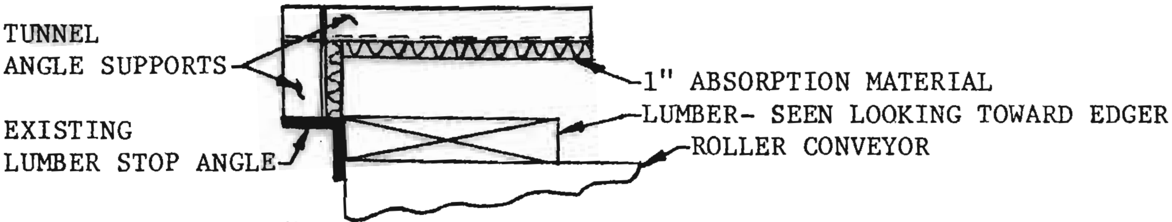
a.) Closing all unnecessary holes with materials similar to those previously used, including up to the ceiling, if possible, and close-in the unused Plexiglas viewing area. Weld sheet metal into place as possible to close up holes, too.

b.) Install doors of a weight per square foot similar to that of the existing plywood and seal as possible. Keep doors shut. Provide a lined make-up air tunnel, if required.

c.) Install absorption material on the inside of the enclosure similar to the recommendations made for the existing planer enclosure, placing it between the studs.

d.) Provide hinged sheet metal and/or conveyor belting at infeed and outfeed area holes.

e.) Add an infeed tunnel of at least two sides as seen below:



Line it with 1" ceiling board absorption. Angle supports for this tunnel could be welded to the existing lumber stop angle. Its length should ideally be as long as is required to extend to the end of the longest lumber when it is engaged at the saws.

f.) Add a hanging, hinged sheet metal piece and belting at the scrap conveyor trough.

g.) Provide additional sprinkler protection, if necessary.

Lastly, to better utilize the wall between the CNS itself and the remainder of the CNS mill:

a.) Assure that the CNS outfeed hole is minimized and maintained that way.

b.) Assure that the double doors and single door are kept closed. This may mean installing an automatic door closer or more practically some counterweights with ropes to close the doors.

At this point, I would like to wish you continued progress toward implementing your noise control program. This will be my last official correspondence regarding our contract A-2578. I would encourage those implementing the noise controls recommended at your mill to review all of our correspondence to date. I would also like to remind you again that annual audiometric tests are coming due again. It is still essential that you continue a strong hearing conservation program, especially in light of new OSHA regulations which better define just what is expected of them (see information in my letter to you of August 31, 1981).

Please feel free to call this office or the Douglas office should you have questions concerning designs provided or other noise control related items. I will miss working with and seeing you all on a regular basis.

Sincerely,

George H. Lee, Director
Central Georgia Area Office

GHL:msz

gHkee:

A-2578 report recap: Oct '79 – Feb 16, '81

/27/80

A-2578-000 Continental Forest Industries

The planer mill trim saw enclosure design package was completed and mailed to various parties at Continental with an explanatory letter.

/3/80

A-2578-000 Continental Forest Industries

Spent Tuesday in Hazlehurst. Spoke with Jerome Rogers about implementation progress on noise enclosures, as well as about the trim saw enclosure design just completed. Reimer Bland is still working on an Energex System in Virginia, but will hopefully implement our recommendations by January. Other capital equipment is on-site in Hazlehurst which needs to be put in, too. Measurements were taken for the design of the end treatments and underneath treatments of the planer mill trim saw. Additional measurements were made of the Chip-N-Saw trim saw and design was begun on its enclosure. Received a copy of Mill No. 152's baseline audiogram summary from Jim Hankla. Jerome was reminded of an upcoming quarterly OSHA report which is due. He was also urged, again, to install recording ammeters for a more precise downtime determination.

0/80

A-2578-000 Continental Forest Industries

Planer mill trim saw enclosure designs for the ends and underneath were finished and mailed to Jerome Rogers. Worked on the design of the Chip-N-Saw mill trim saw enclosure.

/80

A-2578-000 Continental Forest Industries

Continued work on the Chip-N-Saw trim saw enclosure design.

1/80

A-2578-000 Continental Forest Industries

The amp draw recorder obtained from Larry for use at Continental is not useable due to non-continuous recording. Information about the Quest 142 Chart Recorder was sent to Sherman and Harris for their review for its possible use with the amp probe received from Larry. We are attempting to better document Continental Forst Industries' downtime.

5/80

A-2578-000 Continental Forest Industries

Worked on chipper and Chip-N-Saw trim saw sound power calculations and predictions. Called Reimer Bland to check on implementation progress, but he was out of the office and/or the state.

/81

A-2578-000 Continental Forest Industries

Visited the company and made additional physical measurements at the Chip-N-Saw trim saw for incorporation into enclosure designs. Researched and wrote a letter to Ed Hester advising him of just what CFI can do to alleviate a dust (ash) problem which has come up as a result of their installatin of an Energex wood firing system. Spoke with Bill Bulpitt about this same problem.

/81

A-2578-000 Continental Forest Industries

A letter summarizing the new OSHA noise amendment was sent to Jerome Rogers, along with copies of pertinent sections of the amendment.

1/8/80

A-2578-000 Continental Forest Industries

Made field trip to Hazlehurst. Ran reverberation tests (pistol shooting) in the Chip-n-Saw mill area. Additional data was gathered, too, in the office area. Added office equipment has degraded the audiometric testing site severely, and plans were made to remedy this. Personnel records were utilized to determine people's names for testing in September. Attempted to get several outstanding levels. This was hampered by a stacker fire and numerous shutdowns of the band mill due to too few employees on the green puller line. Looked at the CNS trim saw critically for feasible enclosure ideas.

25/80

A-2578-000 Continental Forest Industries

Letters were sent to Jim Hankla and Jerome Rogers listing personnel for audiometric testing. Discussed room levels with Hankla. Continued work on various control designs for Mill No. 152. Called Hannco Knife and Saw for information about their "quiet saws." Obtained volume flow information on the planer mill removal system blower for makeup tunnel sizing.

/80

A-2578-000 Continental Forest Industries

Details concerning upcoming audiometric testing were discussed with mill personnel in Hazlehurst. A PO will be sent this week as required. The required room for use was finalized with Jim Hankla of the Ware County Health Department.

5/80

A-2578-000 Continental Forest Industries

Spent a day at Hazlehurst assisting in the audiometric testing of all employees I had identified previously. This consisted of making sure that everyone was on schedule, that plugs were being worn before the test, and generally coordinating work toward this goal. Also I discussed plugs and the importance of their use to employees as they came in for testing.

9/80

A-2578-000 Continental Forest Industries

Worked on loads and stresses for the planer mill trim saw acoustical enclosure. This enclosure is nearing completion and is a major effort toward bringing levels down on the planer mill. Implementation efforts by Continental are proceeding slowly, however, due to the higher priority which has been assigned to the installation of an Energex boiler firing system. Attended the 1980 Sawmill and Panel Clinic and Machinery Show in Atlanta. Various drawings of Continental Forest Industries' enclosure designs were sent to Dave Poss for his review and our reference during discussions.

/80

A-2578-000 Continental Forest Industries

Continued final details drawings for the planer mill trim saw enclosure.

/80

A-2578-000 Continental Forest Industries

Design work continues on the planer mill trim saw enclosure. Additional drawings were sent to Dave Poss for our discussion. Spoke with Irvington-Moore Co. personnel in Jacksonville, the makers of this trim saw, to follow-up on a previous letter questioning any information about the efforts they have made towards noise control. They have made none. This design would be saleable to any other company who uses this type of trim saw. Available stock and data catalogs were requested from Ryerson, makers of various standard steel and aluminum items.

/19/80

A-2578-000 Continental Forest Industries
Worked on sound power and other data reduction during the week resulting from last week's visit. Enclosure information was requested from George Koch and Sons.

9/80

A-2578-000 Continental Forest Industries
Spoke with Jim Hankla of Ware County Health Department and encouraged him to call Jerome in Hazlehurst about audiometric tests. Jerome had promised to call on last trip.

/30/80

A-2578-000 Continental Forest Industries
Sent Sherman copies of Procedures and Regulations chapters of BBN's "Sawmill Noise Control" as well as a copy of current OSHA regulations for his use. He is continuing efforts to document idle/downtime at the Hazlehurst plant. It is anticipated that downtime levels are about 25%.

1/80

A-2578-000 Continental Forest Industries
Worked on the designs of noise controls for the planer mill area, particularly the infeed side of the planer mill trim saw. Developed estimates for the sound power of this machinery, as well as the possible improvement from a partial enclosure on the trim saw.

8/80

A-2578-000 Continental Forest Industries
Completed drawings for absorption panels at the planer mill trim saw, as well as for a lined tunnel insert at the planer outfeed. Researched prediction methods for silenced ducts and began to do final drawings for the makeup air duct for the planer enclosure. Talked with Jerome Rogers, Plant Manager, and to Reimer Bland. Jerome indicated that their management is now coming around to supporting the implementation of controls, as well as audiometric testing. Bland will be working with me on this. Plans were made to meet the week of August 11th, after he reviews my recommendations to date. Discussed basic ideas of noise control with Bland by phone for some time.

/80

A-2578-000 Continental Forest Industries
Spent most of the 12th with Reimer Bland in Hazlehurst. We discussed work to date and went to see St. Regis' Lumber City control measures. Measurements were made at their planer infeed which convinced Reimer of the advisability of installing a partial infeed enclosure. We looked at the feasibility of an administrative move for Continental's infeed operator. Again, level reductions were noted, and were convincing, especially for such a workable, no-cost charge. We walked over the entire mill and I pointed out several of the especially harmful exhaust air leaks. We discussed other control measures. He will begin to implement measures in the planer mill. Jerome requested that Jim Hankla be contacted to do audiometric testing as Continental management has decided (agreed with OSHA) to proceed. Hankla was set up for September 15th. Continental does <u>not</u> plan to do periodic audiograms, however, and I expressed disappointment, as this is illogical. They will encourage the use of E-A-R malleable plugs. Approximately forty employee positions were identified as needing to be tested. Completed and delivered drawings of the A-20 infeed shutters and lined outfeed tunnel; also, a listing of items to upgrade the planer mill trim saw infeed, and drawings of typical absorption panel mounting details. Continued working on the design of the planer mill trim saw enclosure. Drawings were relayed to Dave Poss for comments.

/7/80

A-2578-000 Continental Forest Industries

Worked on identification and reduction of data from 4/1 and 4/2. Drew several concept layouts of planer mill and C-n-S mill trim saw enclosure sections. Continental was on a holiday Monday. Called for Jerome at home that day, but he was unavailable. Talked to Humphrey on Tuesday and requested that he have Jerome call me. Discussed desire to know what had happened with OSHA and if he would like me to visit Savannah's OSHA office. Calls not returned.

14/80

A-2578-000 Continental Forest Industries

Proofs of photos taken by Sherman were mailed back to him for selected blowups.

1/80

A-2578-000 Continental Forest Industries

Continued tape data reduction work and began work on an extensive summary letter.

8/80

A-2578-000 Continental Forest Industries

Letters were written to several manufacturers of sawmill equipment for suggestions for quieting their product and to inquire about possible modifications for prefabbed enclosures. An extensive letter was composed partly as a quarterly summary, but mainly to put on paper some previously verbal recommendations. New recommendations were made for upgrading the planer enclosure's acoustical performance. Contacts were made with several suppliers and others re this work. Received photos from Sherman.

/80

A-2578-000 Continental Forest Industries

✓ Worked on planer infeed mechanism design. First quarter summary letter completed and mailed with various recommendations and discussions. This letter got many things on paper which had been only verbal. Drew planer infeed shutter. Letter was sent to makers of the Chip-n-Saw for noise control suggestions. Called Bolt, Beranek, and Newman (California) to see if any addendums have been done for this sawmill study. They are to send listing of all such "trade association" studies they have done.

/80

A-2578-000 Continental Forest Industries

Visited Hazlehurst and got much 1/3 octave data. Had good discussions with Ed Hester, Sam Carter, and Jerome Rogers. Discussed planer infeed mechanism design feasibility. Three copies of drawings were redrawn, consolidated, and sent to Jerome for his use. A prioritized listing of mill air exhaust silencers needed was sent to Connie Hanson at her request. Continental's people were voting on a union contract this week. They have tentatively been approved for a capital improvement - to include a new (and quieter) planer with spiral cutter heads.

3/3/80

CONFORIND

A-2578-000 Continental Forest Industries
Identified and worked on data reduction from the 2/28 and 2/29 trips to Hazlehurst. Visited the Owens-Corning Office in Macon to request information. Added to various mill layouts with dimensions obtained last week. Designed a form for plotting spectrum analysis results. Sherman and I visited Continental. We had been assured that the band mill would be running; however, due to a kiln fire this mill was not going as hoped. Some chip-n-saw mill levels were recorded. As possible, we try to get data for future phase work. Photos were taken of many areas of the plant by Sherman, especially sources. We did a good bit of additional machine measuring, especially of the three trim saws, the planer enclosure tunnels, and the planer infeed mechanism. The planer mill will be our initial target mill for completion of a thorough survey of existing levels, as well as the initial mill for design of treatment of noise sources where needed. Idea sketches were made for a planer enclosure silenced tunnel for make up air.

/10/80

A-2578-000 Continental Forest Industries
Read and reviewed Bolt, Beranek, and Newman's summary of noise control report on trim saws and planer enclosure designs. Completed several spectrum graphs from tapes of previous visits. Entered Norton Comfit plugs into protection evaluation forms and did additional task equivalent level computations. Drew up trim saw layouts from previous measurements.

7/80

A-2578-000 Continental Forest Industries
Spoke with Connie Hansen and advised her of source of E-A-R plugs. They should be on hand within a week. Spoke with Jerome Rogers. OSHA has requested a joint meeting with the union. Task equivalent levels work was done for outstanding tapes and all task levels and tapes were reviewed for additional info needs. Attended the Metrosonics industrial and environmental noise seminar one-half day in Atlanta. Reviewed photos taken by Sherman at this mill.

/80

A-2578-000 Continental Forest Industries
Ed Hester called to request that I call Richard Fairfax, an OSHA Compliance Officer in Savannah, who turned down an extension request and will impose a fine, to find out why the denial and how much the fine would be. Fairfax indicated that Continental had not requested an extension before his visit, had not done any audiograms, and had essentially marked time considering that 1975 was their original citation date. I have pushed "hearing conservation program" since first coming in contact with Continental. These folks just aren't yet taking OSHA seriously. An informal conference with company reps and/or myself and OSHA would be useful according to Fairfax. All of this information was given to Hester and Rogers on March 24th.

/80

A-2578-000 Continental Forest Industries
Visited Hazlehurst two days this week. Band mill data was available. Also did some dosimeter recordings, got outstanding task levels, and measured sources. Ed Hester to temporarily be replaced by Ted Adams. E-A-R plugs had still not been ordered (needed to "save money"). I insisted that this be done and was informed that it had been before leaving.

2/18/80

A-2578-000 Continental Forest Industries

Sherman and I worked in Hazlehurst to establish worker exposure times. We talked with Alan Humphrey and Connie Hanson about the need to stick with one type of hearing protector and not switch around. Also, we recommended that they obtain the E-A-R malleable foam plugs. These plugs do not need fitting and are quite good. Other information will be supplied to Connie concerning hearing protection equipment and conservation programs. Buddy Love, Planer Mill Supervisor, was interviewed at length about his people's times. The mill is now running four ten-hour days, as a rule, Monday through Thursday. Sherman met with Ed Hester on Friday for chip-n-saw mill people times. Level measurements were made at many planer mill and stacker positions. An analysis was done on hearing protector effectiveness and some task equivalent levels.

25/80

A-2578-000 Continental Forest Industries

Reduced most data taken last week in the planer mill area. Another data trip was made. I recorded planer mill levels one day to fill in as possible for those conditions unavailable previously. Now need primarily downtime levels. Recorded in the chip-n-saw mill for tasks Sherman had identified last week. Delivered and discussed several articles with Connie Hanson about hearing conservation programs and the proper use of E-A-R plugs. She will order them as well as get additional sizes of other plugs used to help achieve better personal fit for personnel. She thought all plugs were the same. She will also purchase a device to help size ear canals for better fitting purposes. Talked with Sam Carter, maintenance department head, about his department's important role in control implementation and previous efforts at Continental, particularly with respect to the planer enclosure. The band mill is down indefinitely due to the economy, but will run Friday week, so levels there will be obtained as well as at surrounding stations to help ascertain its impact. Sherman and I talked with Jerome Rogers. Continental is being pressured by OSHA and we discussed what we felt they wanted - a good interim hearing conservation program, especially audiometric testing. Some tests, it was learned, have been done for new hires by the company doctor. A division VP, however, is the real holdup, as he is leary of opening themselves up to liability claims. Rogers will send OSHA a copy of our program of work and discuss a positive, scheduled audiometric testing program. It seems that the Woodland's division had contracted this work previously and no one knew it. Forest Products will now use them, too. Sherman and I discussed realistic downtime levels with Ed Hester and Jerome Rogers. Hester, Plant Production Supervisor, estimated fifteen-twenty percent, while Rogers, Plant Manager, estimated more like forty-fifty percent. Sherman is to ascertain realistic average levels and has requested that recording devices be installed on several machines.

/12/79

A-XXXX-XXX Continental Forest Industries, Forest Products Division -
Hazlehurst (Jeff Davis)

Alan Humphrey was again contacted. Continental has had to reduce their Hazlehurst operation from two to one shift and be very careful about layoffs due to the union. I was assured, however, that our contract work would not be affected. I reiterated the need to go ahead on this project, especially in light of upcoming OSHA deadlines, as well as the need for several other items which Sherman and I had requested (much of which will be affected by the cutback, though). Anyway, if no word comes this week a visit to them is definitely in order. Humphrey promised to call when he had the signed contract in hand. The contract was mailed to them for signatures per OCA on Friday, 10/26/79.

26/79

A-XXXX-XXX Continental Forest Industries, Forest Products Division -
Hazlehurst (Jeff Davis)

Made a visit to Continental's Hazlehurst operation and spoke with Alan Humphrey. He is beset by work, but took an oath to get the contract back ASAP. I expressed concern for them with regard to an upcoming OSHA deadline (I think - since no data on this either).

/31/79

A-XXXX-XXX Continental Forest Industries, Forest Products Division -
Hazlehurst (Jeff Davis)

A call to Alan Humphrey revealed that the contract has been sent to Savannah in Bill Nagle's office. This took place the week after you called him on Friday. A call to OCA was inconclusive as Sue Corbin was out sick.

/80

Continental Forest Industries, Forest Products Division -
Hazlehurst (Jeff Davis)

Bill Nagle, in Savannah's office, was called and was apologetic about their noncommunication re our contract. He expressed his intent to proceed. Another call from Alan Humphrey in Hazlehurst was similarly apologetic. Contract? . . . in work.

/80

A-2578-000 Continental Forest Industries

Word was received from you and OCA that the signed contract had been received. Reviewed data to date in anticipation of Sherman or Harris and I spending a few days in Hazlehurst next week. Talked with Alan Humphrey to make him aware of our visit and goals. Our task next week will be to fill in basic data gaps on equipment types/locations and on operator group tasks/times and to begin recording task levels. Study of data on hand will indicate any additional protection to be obtained. Mill personnel have not made any audiometric room improvements. They are back to two shifts now, too.

/15/79

A-XXXX-XXX
Continental Forest Industries, Forest Products Div. - Hazlehurst (Jeff Davis)

Continental Forest Industries Management has accepted our contract. A retype of the proposal, a routing sheet, proposal control sheet (updated), an abstract, and a data input form were prepared and sent to your office for expeditious treatment, as the company would like to be able to tell OSHA that they have contracted with us to begin work on their noise problems.

Sherman and I started work in Hazlehurst Thursday. We talked with Jerome Rogers, Ed Hesters, and Alan Humphrey, gathering administrative data and orienting them to our future activities. We also met with all of the mill's supervisors. I stayed to continue measurements throughout the plant on Friday. Levels were obtained at most all operator positions for the purpose of blanket plug prescriptions. Measurements were also investigated in the office area for the purpose of possible audiometric work there.

Continental Forest Industries (cont'd.)

I visited the Macon Speech and Hearing Center and met with Gene Thompson, a clinical audiologist to discuss what he could do for industries needing employee audiograms.

2/79

A-XXXX-XXX Continental Forest Industries, Forest Products Div. -
Hazlehurst (Jeff Davis)

Letters were written for literature on their presently used plugs. We are holding back some until the contract data which they should have received Thursday or Friday of this week is completed. They have not sent any of the citation data as requested to date. Talked to Dr. Jim Lowe, a local ENT Doctor, as well as the office of Dr. C. L. Pennington, another ENT. Requested "Health and Safety Guide for Sawmills and Planing Mills" from NIOSH. Requested information on quiet conveyor bearings. Talked with Ray Junk re the Fulghum, Fl Chipper and asked if he knew of any noise control efforts by Fulghum Industries. They have not done anything to his knowledge. I forwarded Ray information on chipper (as a source) noise control for Fulghum's possible use.

79

A-XXXX-XXX Continental Forest Industries, Forest Products Division -
Hazlehurst (Jeff Davis)

Spoke with Alan Humphrey re our contract. At our request Mr. Humphrey was designated by Jerome Rogers, Plant Production Manager, as our contact for the noise work. Data previously taken was evaluated and sent by letter to Alan discussing testroom levels, recommendations to quieten the room to useable levels, and six suggested sources with costs for audiometric tests which ranged from $5-$10 per test. I think the house building cutbacks will affect Continental's operation and they are quite busy with this concern now.

CONTRACT DEVELOPMENT

1/19/79

Continental Can Co., Lumber City (Telfair)

Bill Craig and I met with Mr. Jerome Rodgers, the Plant Manager, to discuss possibilities of Georgia Tech contracting to look at their sawmill noise problems. Sherman will call Mr. Rodgers and we anticipate going down to do some preliminary measurements soon.

/10/79

Continental Forest Industries - Hazlehurst (Jeff Davis)

I spoke with Jerome Rogers, Plant Manager, by phone to set up a visit for Sherman and me next week. We will be touring their sawmill with Ed Hesters, Plant Supervisor, with the idea of proposing a large noise control contract to them. If you recall, Bill Craig and I had visited Mr. Rogers earlier this year. This company has been cited for noise by OSHA and needs help. Sherman and I will work about 1:2 respectively on this project, if accepted. I also spent additional time this week "boneing up" some on noise related information.

7/79

Continental Forest Industries - Hazlehurst (Jeff Davis)

Sherman and I went through the plant with Ed Hesters, Plant Supervisor, asking him many questions about plant operations, hearing protection, employee attitudes, present noise controls, and other items relevant to the noise work we intend to propose. This mill goes from debark to finish dried lumber. Someone has made some efforts at enclosures and employee booths, but they are in general disrepair and/or are quite ineffective. The plant is very much cramped with little separation between noisy areas. A chipper sits right in the middle of it all. The company is unionized. After the tour we did some survey work to get a better idea of levels. Even at idle we saw 90+ levels mostly. We then met with J. Rogers, Plant Manager, and discussed what we could do for the company, which has been cited by OSHA for noise. It is quite evident that they first need to get going on a good hearing conservation program. This will probably assure an "other than serious" or extensions from OSHA for them. We were requested to propose a program of work by the end of next week, if possible. We worked, this week, on developing a four phase program and its budget for presentation. Sherman picked up my input Friday afternoon late on his way back from Atlanta.

/79

Continental Forest Industries - Hazlehurst (Jeff Davis)

Additional information was prepared and coordinated with Sherman for workup into our proposal. I talked to Mr. Rogers by phone and arranged to meet him to deliver the proposal. He was informed as to the level of work (money) we had come up with.

79

Continental Forest Industries - Hazlehurst (Jeff Davis)

Sherman and I reviewed the proposal to be submitted to Jerome Rogers. We delivered it to him at the sawmill and answered his questions about it. He was quite optimistic that his superiors in Savannah would follow through with its approval as they have promised.

Recap Report 2/81-4/81 A-2578

A-2578-000 Continental Forest Industries

2/16-27/81 A letter summarizing the new OSHA noise amendment was sent to Jerome Rogers, along with copies of pertinent sections of the amendment.

A-2578-000 Continental Forest Industries

3-13/81 Contacted Jerome Rogers on March 3rd to advise him of a possible OSHA visit, since they will be coming to St. Regis, Lumber City, for a scheduled meeting that week. Visited Hazlehurst on March 12th at Jerome's request to handhold during the construction of the planer infeed enclosure. Unfortunately, Reimer Bland was not there since he had unexpectedly become ill and was to be hospitalized in Augusta. Sam Carter, Maintenance Supervisor, has left the company. Nonetheless, physical measurements were taken at the chipper infeed area for design of its infeed enclosure. The planer infeed enclosure's materials list was summarized and sent to Connie Hanson, Purchasing Agent.

A-2578-000 Continental Forest Industries

-31/81 Discussed planer infeed mechanism enclosure bill of material needs with Connie Hanson. Compiled and sent Eric three packages of information, including copies of drawings and letters which represent quarterly reports for Continental. Continued working at every opportunity on the design of the Chip-N-Saw trim saw enclosure.

A-2578-000 Continental Forest Industries

-15/81 Continued detail design work for the Chip-N-Saw trim saw enclosure, especially lower infeed areas, outfeed areas, and ends. Talked with Connie Hanson about absorption materials being ordered. Drawings of CNS trim saw enclosure designs to date were sent to Dave Poss and Sherman Dudley for their review and familiarization. Dave will check drawings upon their completion.

A-2578-000 Continental Forest Industries

-30/81 Work continues on the Chip-N-Saw trim saw enclosure, especially end treatments and the incorporation of refinements and measurements gathered in a visit to Hazlehurst on 4/28. Advance drawings of the C-N-S trim saw enclosure and very preliminary drawings of the chipper infeed tunnel were delivered to Jerome Rogers for his preliminary review. Pictures were taken at Continental, especially around the band mill trim saw and edger. The Band Mill trim saw will be the last major piece of equipment for enclosure following the chipper tunnel. Discussed contract extension possibilities with Jerome to allow Continental to implement controls. Reimer Bland is evidently not to be the one to implement them, as Jerome has instructed Ted Adams to proceed. Program of work calls for a resurvey following inplementation.

A-2578

EMPLOYEE NOISE EXPOSURE PROFILE
for
CONTINENTAL FOREST INDUSTRIES,
BUILDING PRODUCTS DIVISION,
MILL NO. 152, HAZLEHURST, GA

Prepared by

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THE GEORGIA INSTITUTE OF TECHNOLOGY
September 25, 1981

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INTRODUCTION

This Employee Noise Exposure Profile is part of ongoing noise reduction and hearing conservation programs of Continental Forest Industries at their Building Products Division, Hazlehurst, Georgia, mill.

Continental Forest Industries contracted this profile as an initial survey to precede the implementation of noise control measures.

Broader assistance within the scope of their efforts toward an effective noise control program included upgrading the hearing conservation program; the determination, design, and company implementation of controls thought to be practical and effective; and the resurvey of workers to ascertain the achieved reductions of sound levels.

SCOPE OF WORK

The scope of this present work included:

1. Identification of employees by job title, locations, normal work tasks, and time spent at each task.
2. Measuring and recording sound pressure levels for each worker task. Where continuously varying levels were found, an equivalent level was calculated using representative sampling.
3. Correlations of task times and task levels were made, yielding noise dose estimates by worker or worker groups and total noise dose percentages for the current 8.5 hour workday. The current regulations as prescribed by OSHA §1910.95 Occupational Noise Exposure were used as the criteria for dose computations. At the time of the initiation of this work in February 1980, a 90 dBA 8-hour TWA was the criteria in effect for both personal hearing conservation program initiation and engineering controls.

PERSONNEL IDENTIFICATION

A total of sixty-two employees were considered in this study. This total excludes office personnel who do not have occasion to go into the production areas of the mill. Also excluded, by original agreement, were maintenance and clean-up personnel. Every effort has been made to identify subject workers during a period in which worker totals and worker assignments were continuously changing in response to the economy's demands.

Forty-six worker or worker groups were identified, varying from one to seven employees each. Identifiers were B for Band Mill (BM), C for Chip-N-Saw Mill (CNS), P for the Planer Mill (PM), and S for the Stacker. Such an identification as C13 identifies a particular group or individual worker in the CNS Mill, for example.

One hundred and five normal tasks were identified and the time spent in each task was established as accurately as possible as can be seen on dose computation sheets.

The above mentioned information was gathered by Sherman L. Dudley and George H. Lee of the Georgia Tech Engineering Experiment Station and Industrial Extension Division staff. Nine data gathering dates were involved, often in connection with concurrent ongoing needs for other phases of this work. Data dates were 2/20,28,29/80, 3/7/80, 4/1,2/80, 8/22/80, 11/5/80, and 9/18/81.

Personnel listings, job assignments, job task identifications, task time assignments and other information was provided through interviews - primarily with Ed Hester, Plant Supervisor, but also with Jerome Rogers, Plant Production Manager, the various mill supervisors, and various other workers. Throughout the study period efforts were made to double check the reasonableness of these data through discussions with supervisors and workers, on occasion, throughout the production areas.

The total time used for one day of work was 8.5 hours. Lunch time was taken as 0.5 hours, breaks as 0.33 hours total, and restroom time allowance was 0.25 hours per day. Levels during these times were assumed to be those of the break room and restroom (<90 dBA).

An estimate of downtimes was made using the four month period of 2/25 through 6/26/80 as a basis. Idle and operating time was found to total 74.6%, while downtime was then calculated at 25.4% for the mill as a whole. For the purposes of this exposure profile, downtime is assumed to involve work stoppage either totally or to the degree that levels are brought below 90 dBA. This is thought to be a conservative assumption considering varying estimates on interview of downtimes with some estimates going as high as 50%. Contrarily, in many instances smaller downtimes were evidenced from interviews, as evidently the overall downtime is sometimes larger than that of an individual mill.

Future surveys can take this estimate and resulting doses as realistic estimates of existing exposure at the time of measurement and compare them to new absolute exposure estimates. Or, it might be desired to simply remeasure idle and operating levels and recalculate doses, using the same downtime percentages, lunch lengths, etc. This approach would give a rough, but reasonable estimate of the improvement or degradation of the noise environment. Improvements might be due to such items as new and quieter equipment, noise-controlled equipment, or changed methods. Degradation might be due to such items as new or added equipment, degraded maintenance, or misuse of controls in place at the time of the initial survey.

Several tasks were grouped together as a cycle as in the case of lift truck operators and the equivalent levels of these cycles were taken to represent the overall task of operating the forklift.

TEST PROCEDURES

After calibration, equipment was set to record A-weighted sound pressure levels. The Bruel & Kjaer 2209 impulse sound level meter was set to slow response and levels were monitored as they were inputted to the B & K 2203 graphic level recorder via a DC log signal. The recorder was in all cases recording at a 250 mm/sec pen speed. This setting assured that the recorder would faithfully follow the slow response set into the sound level meter. Recorder paper speed was noted on each output tape. It varied from 1 mm/sec in cases where the signal was relatively steady to 10 mm/sec in some rare instances. The majority of paper speeds were 3 mm/sec where levels typically fluctuated as they will in a sawmill environment. The faster paper speed facilitated data reduction, as well as provided some better insight as to the sources present.

The thrust of the efforts to record varying levels was to record representative samples of the task noise under study. Generally, longer times were recorded for more variant noise levels than for steadier ones. In some cases, several tapes were recorded and then combined. This was often necessitated by stop and go production activity.

Test environmental conditions, such as temperature, humidity, and wind speeds, were for all cases of data utilized of negligible consequence with regard to recorded noise levels.

It should be noted that levels of this report are those existing prior to the installation of the Energex wood firing system, and specifically the hog behind the planer mill office area.

DATA REDUCTION PROCEDURES

Recorded tasks' data was analyzed by completing an "Equivalent Noise Exposure Data Sheet." Data samples were subdivided into 0.83, 1, 1.67, 2.5, or 5 second intervals for the sampling of levels to be entered into this sheet.

Where computations indicated an "F_m" value of less than 0.125 (1/8), the equivalent noise level, sometimes called L_{OSHA}, was entered as less than 90 dBA (<90). In a few cases where levels such as 89.8 were computed, 90 dBA was used.

Computations were made for fifty-three of the one hundred and five tasks. For some tasks the equivalent levels were obviously less than 90 dBA and this was so noted on the reduction form.

While 90 dBA was observed as the cutoff point for the worker group dosages, efforts were made to supply 85 dBA cutoff data as well. This was done in all cases where computations were made. The latter data will provide an even more accurate assessment of existing equivalent levels with less of the "regulatory" impact which is brought by assuming less than 90 dBA levels result in zero dose, even though high eighties levels do exist.

The enclosed listing of dosages in descending magnitude also includes totals in parentheses. These dosages are those which result when high 80's dBA levels are used as if they were 90 dBA. This treatment will give a more realistic idea of the worker's actual exposure without regulatory distortion. Such distortion comes about for those in the "gray" area around the 90 dBA cutoff level.

OSHA regulations at the time of the measurements and most computations for this survey specified a 90 dBA cutoff. They "like" to have level assessment go 5 dBA below the regulation, hence the 85 dBA. Newest regulations require going down to 80 dBA in computations since 85 dBA 8-hour time weighted averages (TWA) are now the target levels for hearing conservation programs. It is advisable to apply this program to all those of 50% or larger dosages. At this mill I would suggest, now, the testing and inclusion of all production area employees in the hearing conservation program.

COMMENTS

It should be mentioned that "steady" 115 dBA level exposures are not allowed by OSHA regulations for any length of time. It is, therefore, advisable that no one enter the planer enclosure room without adequate personal hearing protection. This should also be a stipulation for those who have occasion to work near the chipper (between the Band Mill and the Chip-N-Saw Mill). This does not mean that other instances of over exposure above 115 dBA are not to be found occasionally, as when a worker get closer than normal to a machine, but that these two locations are those thought most likely to require protection for over 115 dBA exposure during normal operations.

SUMMARY OF WORKER DOSAGES OVER ZERO PERCENT ARRANGED BY DESCENDING MAGNITUDE

CONTINENTAL FOREST INDUSTRIES
MILL NO. 152

TOTAL WORKER OR WORKER GROUP DOSE, %	I. D. NO.	WORKER OR WORKER GROUP TITLE
441 (450)	P3	Machine Feeder, Planer
352	C7	Chip-N-Saw Edger Operator
342	C8	Trim Saw Operator & Relief Operator
308	B8	Vibrating Conveyor Attendant/Cleanup Man
285	C9	Chip-N-Saw Trim Saw Helper
268	B4	Band Mill Trim Saw Operator
228	C2	Chip-N-Saw Mill Supervisor
212	B7	Band Mill Supervisor
201	P24	Planer Mill Maintenance Man
194	C10	No. 1 Tipple Operator
177	P20	QC Man
171 (180)	P19	Cleanup & Round Table Man
165	P21	Planer Mill Supervisor
152 (175)	B6	Tally Man
142 (151)	P4	Grader Nearest Planer Outfeed
139 (148)	C14	Green Chain People - First Man Only
134	P6	Planer Technician
134 (147)	P23	Plant Superintendent
127	B2-3	Band Mill Edger Operator & Helper
125 (134)	P7	Planer Mill Trim Saw Operator
113	C4	No. 1 Kickout Operator
103	P8	Puller Nearest Trim Saw
101	C11	No. 2 Tipple Operator & Helper
100	P5	Grader Away from Planer Outfeed
66	P1	Stick Man
60 (69)	P9-12	Pullers from Trim Saw to Packager

TOTAL WORKER OR WORKER GROUP DOSE, %	I. D. NO.	WORKER OR WORKER GROUP TITLE
44	C17	Chip Truck Loader
42	B1	Headrig Operator
11	P22	Shipping Clerk
9	P13	Package Man
9	P14	Ticket Man
0 (84)	S1	Stacker Operator
0 (80)	B5	Lift Truck to Band Mill Headrig Infeed
0 (80)	P2	Lift Infeed Operator
0 (80)	P15	Lift Outfeed Operator
0 (79)	C15	Green Chain People - Second Position Back (away from mills)
0 (79)	S2	Transfer Operator

NOTE: Dosages in parentheses are results when borderline 90 dBA or high 80's levels are considered equal to 90 dBA.

EQUIVALENT TASK LEVELS SUMMARY

CONTINENTAL FOREST INDUSTRIES
MILL NO. 152

		Equivalent dBA (Slow) Task Levels	
Task No	Task Description	90 dBA Cutoff	85 dBA Cutoff
01	Break Room/Lunch Room	<90	<85
02	Rest Room	<90	<85
03	Stick Man, P1, Near Breakdown Working	95.8	95.8
04	Stick Man, P1, Down	*	
05	Stick Man, P1, Cut up Sticks	102.9	102.9
06	Lift Truck Maintenance Area	<90	<85
07	Planer Infeed Lift Operator, P2, Cycle	<90	87.4
08	Planer Infeed, P3, Feeding	104.3	104.3
09	Planer Infeed, P3, Down	*	
10	Planer Infeed, P3, Idle	<90	88.9
11	Grader (Nearest Planer Outfeed), P4, Grading	96.7	96.7
12	Grader (Nearest Planer Outfeed), P4, Idle	<90	87.2
13	Grader (Nearest Planer Outfeed), P4, Down	*	
14	Grader (Away From Planer Outfeed), P5, Grading	94.0	94.0
15	Grader (Away From Planer Outfeed), P5, Idle	<90	<85
16	Grader (Away From Planer Outfeed), P5, Down	*	
17	Planer Technician, P6, Inside Grinding Room	<90	<85
18	Planer Technician, P6, Inside Planer Enc., w/Lumber	111.4	111.4
19	Planer Technician, P6, Inside Planer Enc., w/o Lumber	101.3	101.3
20	Planer Mill Trim Saw Op., P7, Cutting	95.3	95.3
21	Planer Mill Trim Saw Op., P7, Idle	<90	88.7
22	Planer Mill Trim Saw Op., P7, Down	*	
23	Dry Puller (Nearest Trim), P8, Operating	94.5	94.5
24	Dry Puller (Nearest Trim), P8, Idle	89.9≅ 90	90.9

Task No	Task Description	Equivalent dBA (Slow) Task Levels	
		90 dBA Cutoff	85 dBA Cutoff
25	Dry Puller (Nearest Trim), P8, Down	*	
26	Crane Yard	<90	-
27	Dry Pullers, P9-12, Operating	89.8≅ 90	91.2
28	Dry Pullers, P9-12, Idle	<90	87.9
29	Dry Pullers, P9-12, Down	*	
30	Package Man, P13, Operating	<90	87.1
31	Package Man, P13, Idle	<90	<85
32	Ticket Man, P14, Banding	<90	87.7
33	Ticket Man, P14, Marking	90	85
34	Tally Man, B6, Cleanup at Band Mill Trim Saw Conveyor	91.7	91.7
35	Planer Outfeed Lift Op., P15 & P16, Cycle	<90	86.6
36	RR Car Tie Down, P17-18, Tieing	<90	<85
37	Rough Dry Lumber Shed, Outside	<90	<85
38	Round Table Man, P19, p/u at Table	95.6	95.6
39	Round Table Man, P19, p/u at Trim Saw	95.6	95.6
40	Round Table Man, P19, Down	*	
41	Round Table Man, P19, Idle and Cleanup	<90	88.1
42	Planer Mill Supervisor and Shipping Clerk's Office	<90	<85
43	Outside Dry Kilns at Outfeed End	<90	<85
44	Planer Mill Maintenance Man, P24, at Work Table	96.5	96.5
45	Stick Man, P1, p/u at Conveyor	<90	<85
46	CNS Operator, C6, Cutting (in Booth)	<90	86.0
47	CNS Edger Op., C7, Cutting	100.8	100.8
48	CNS Trim Saw Op., C8, Cutting	100.3	100.3
49	CNS Trim Saw Op. Helper, C9, Cutting	98.9	98.9
50	CNS Operator, C6, Idle (in Booth)	<90	<85
51	CNS Edger Op., C7, Idle and Cleanup	94.9	94.9
52	CNS Trim Saw Op., C8, Idle	98.0	98.0
53	CNS Trim Saw Op. Helper, C9, Idle	98.4	98.4
54	No. 1 Tipple Op., C10, Operating	96.8	96.9
55	No. 2 Tipple Op. & Helper, C11, Operating	92.1	92.7

Task No	Task Description	Equivalent dBA (Slow) Task Levels	
		90 dBA Cutoff	85 dBA Cutoff
56	Band Mill Edger Op. & Helper, B2-3, Idle	92.0	92.0
57	Band Mill Edger Op. & Helper, B2-3, Down	*	
58	No. 2 Tipple Op. & Helper, C11, Idle	<90	<85
59	No. 1 Tipple Op., C10, Idle	<90	-
60	Green Sorter (First Position Near Mills), C14, Operating	94.1	94.1
61	Planer Millbright Area, Line Operating	93.3	93.3
62	Stacker Op., S1, Operating	<90	89.5
63	Stacker Op., S1, and Transfer Man, S2, Idle	<90	<85
64	Stacker Transfer Op., S2, at Conveyor	<90	88.2
65	Bander, C12, Working at Line	<90	-
66	Planer Mill Chip Truck Loading Area	91.2	91.6
67	Stick Layers, S3, Operating	<90	85.3
68	Stick Layers, S3, Idle	<90	85
69	No. 1 Kickout Op., C4, Normal Operations Cycle	91.4	93.0
70	No. 1 Slasher, C3, Idle	<90	<85
71	No. 1 Slasher, C3, Operating	<90	<85
72	No. 2 Slasher, C5, Operating	<90	<85
73	No. 2 Slasher, C5, Idle	<90	<85
74	Kiln Control Room	<90	-
75	Log Deck Near CNS Infeed, CNS Going	97.2	97.2
76	Lift Op., Green Lumber to Stacker, C16, Cycle	<90	-
77	Jib Crane Op., C1, Operating & Idle	<90	<85
78	Band Mill Edger Op. & Helper, B2-3, Operating	95.6	95.6
79	Headrig Operator, B1, Cutting	90.0	-
80	Headrig Operator, B1, Idle	<90	-
81	Main Office	<90	<85
82	Green Sorters (Second Man On), C15, Operating	<90	88.2
83	Headrig Operator, B1, Down	*	
84	CNS Operator, C6, Down	*	
85	CNS Edger Op., C7, Down	*	
86	CNS Trim Saw Op. & Helper, C8-9, Down	*	
87	No. 1 Tipple Op., C10, Down	*	

Task No	Task Description	Equivalent dBA (Slow) Task Levels 90 dBA Cutoff	 85 dBA Cutoff
88	No. 2 Tipple Op. & Helper, C11, Down	*	
89	Band Mill Infeed Lift Op., B5, Cycle	<90	89.6
90	Tally Man, B6, All Cutting	97.0	97.0
91	Plant Superintendent's Office	< 90	<85
92	CNS Mill Supervisor's Office	<90	<85
93	Chip Truck Loader, C17, RR Car Area	<90	<85
94	Green Sorter Attendant, C13, Emptying Sorter & Idle	<90	-
95	Green Sorter Attendant, C13, Down	*	
96	Band Mill Trim Saw Op., B4, Cutting	100.5	100.5
97	Band Mill Trim Saw Op., B4, Idle	98.0	98.0
98	Band Mill Trim Saw Op., B4, Down	*	
99	Tally Man, B6, Idle	<90	89.8
100	Band Mill Vibrating Conveyor Attendant, B8, at Chipper/Cleanup	106.3	106.3
101	Band Mill Vibrating Conveyor Attendant, B8, Under Band Mill	101.6	101.6
102	Green Sorter (First Position Near Mill), C14, Idle	<90	89.9
103	Green Sorters (Second Man On), C15, Idle	<90	-
104	Green Sort Line Workers, C14-15, Down	*	
105	Under CNS Trim Saw Cleanup	93.1	93.1
106	Planer Mill Maintenance Man Lunch Work Time	*	

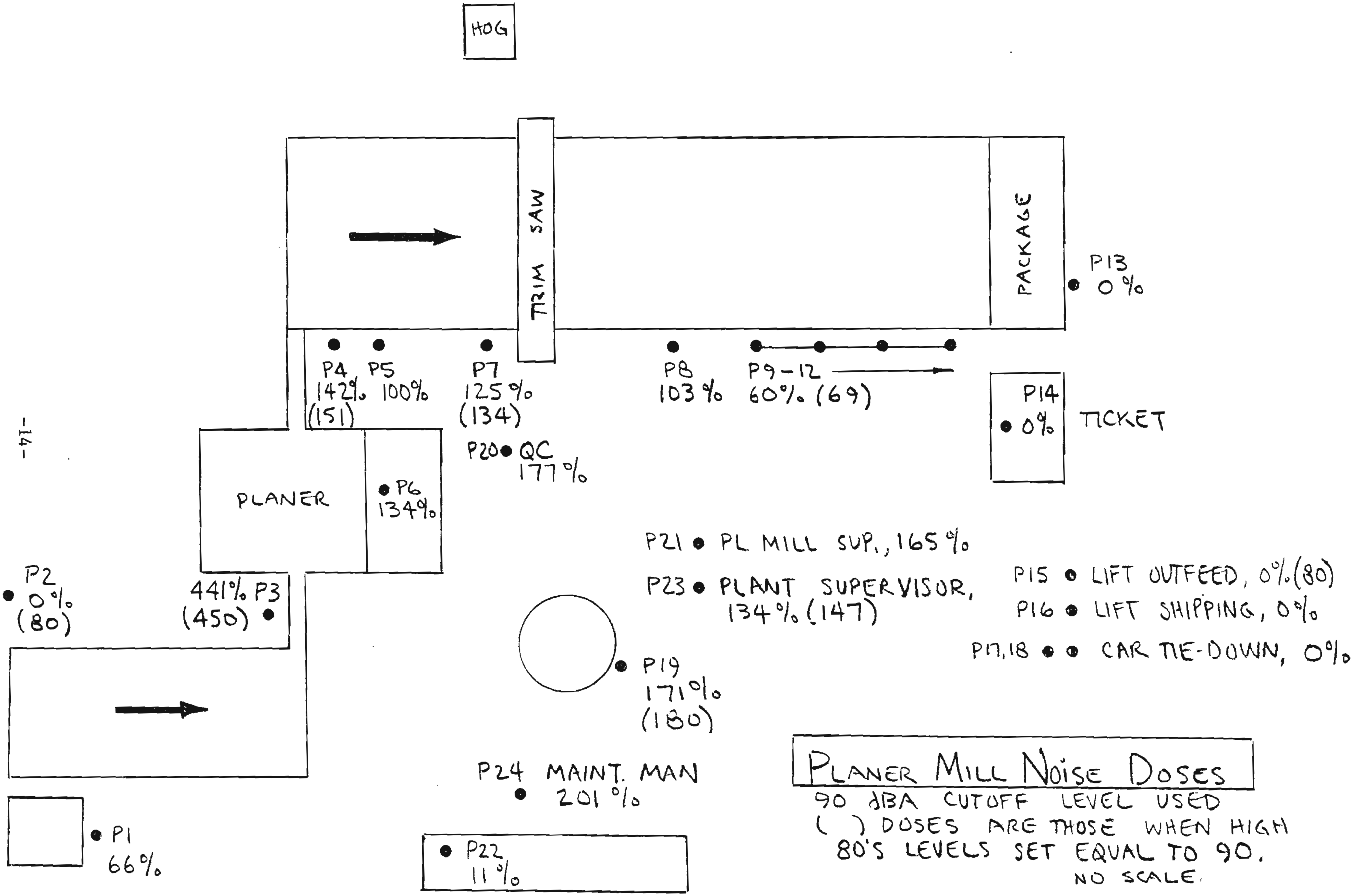
NOTE: Stars (*) indicate downtime tasks, see text.

SUMMARY OF ALL WORKER DOSAGES
USING 90 dBA TASK LEVEL CUTOFFS

CONTINENTAL FOREST INDUSTRIES
MILL NO. 152

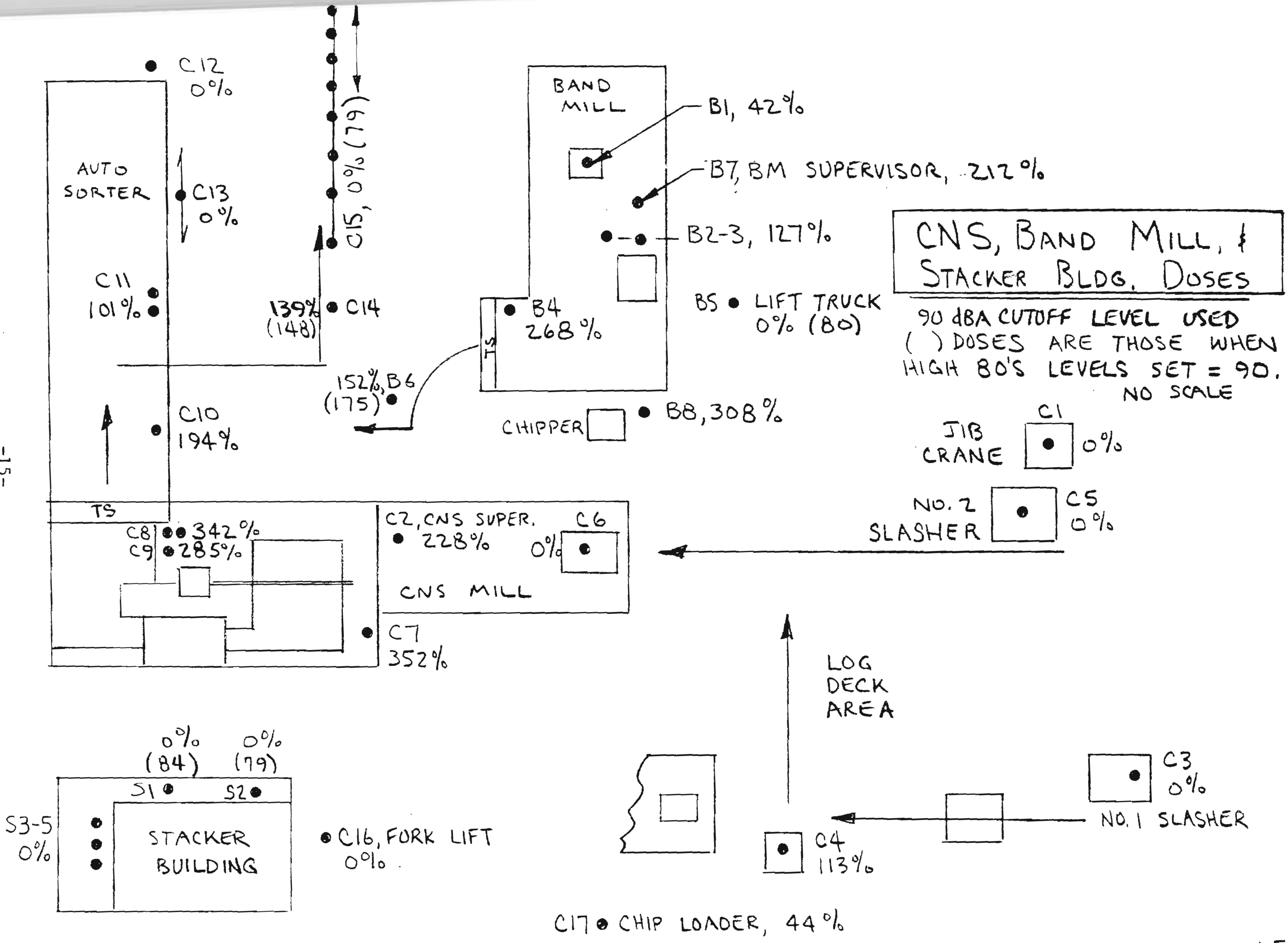
NUMBER EMPLOYEES	TOTAL WORKER OR WORKER GROUP DOSE, %	I. D. NO.	WORKER OR WORKER GROUP TITLE
1	42	B1	Headrig Operator
2	127	B2-3	Band Mill Edger Operator & Helper
1	268	B4	Band Mill Trim Saw Operator
1	0	B5	Lift Truck to Band Mill Headrig Infeed
1	152	B6	Tally Man
1	212	B7	Band Mill Supervisor
1	308	B8	Vibrating Conveyor Attendant/Cleanup Man
1	0	C1	Jib Crane Operator
1	228	C2	Chip-N-Saw Mill Supervisor
1	0	C3	Slasher No. 1 Operator
1	113	C4	No. 1 Kickout Operator
1	0	C5	No. 2 Slasher Operator
1	0	C6	Chip-N-Saw Operator
1	352	C7	Chip-N-Saw Edger Operator
2	342	C8	Trim Saw Operator & Relief Operator
2	285	C9	Chip-N-Saw Trim Saw Helper
1	194	C10	No. 1 Tipple Operator
2	101	C11	No. 2 Tipple Operator & Helper
1	0	C12	Bander
1	0	C13	Automatic Sorter Attendant
1	139	C14	Green Chain People - First Man Only
4-7	0	C15	Green Chain People - Second Position Back (away from mills)
1	0	C16	Fort Lift Operator - Green Chain
1	44	C17	Chip Truck Loader

NUMBER EMPLOYEES	TOTAL WORKER OR WORKER GROUP DOSE, %	I. D. NO.	WORKER OR WORKER GROUP TITLE
1	66	P1	Stick Man
1	0	P2	Lift Infeed Operator
1	441	P3	Machine Feeder, Planer
1	142	P4	Grader Nearest Planer Outfeed
1	100	P5	Grader Away from Planer Outfeed
1	134	P6	Planer Technician
1	125	P7	Planer Mill Trim Saw Operator
1	103	P8	Puller Nearest Trim Saw
4	60	P9-12	Pullers from Trim Saw to Packager
1	9	P13	Package Man
1	9	P14	Ticket Man
2	0	P15-16	Lift Outfeed & Lift Shipping
2	0	P17-18	RR Car Tie Down
1	171	P19	Cleanup & Round Table Man
1	177	P20	QC Man
1	165	P21	Planer Mill Supervisor
1	11	P22	Shipping Clerk
1	134	P23	Plant Superintendent
1	201	P24	Planer Mill Maintenance Man
1	0	S1	Stacker Operator
1	0	S2	Transfer Operator
3	0	S3-5	Stick Layers



PLANER MILL NOISE DOSES

90 dBA CUTOFF LEVEL USED
( ) DOSES ARE THOSE WHEN HIGH 80'S LEVELS SET EQUAL TO 90.
NO SCALE.

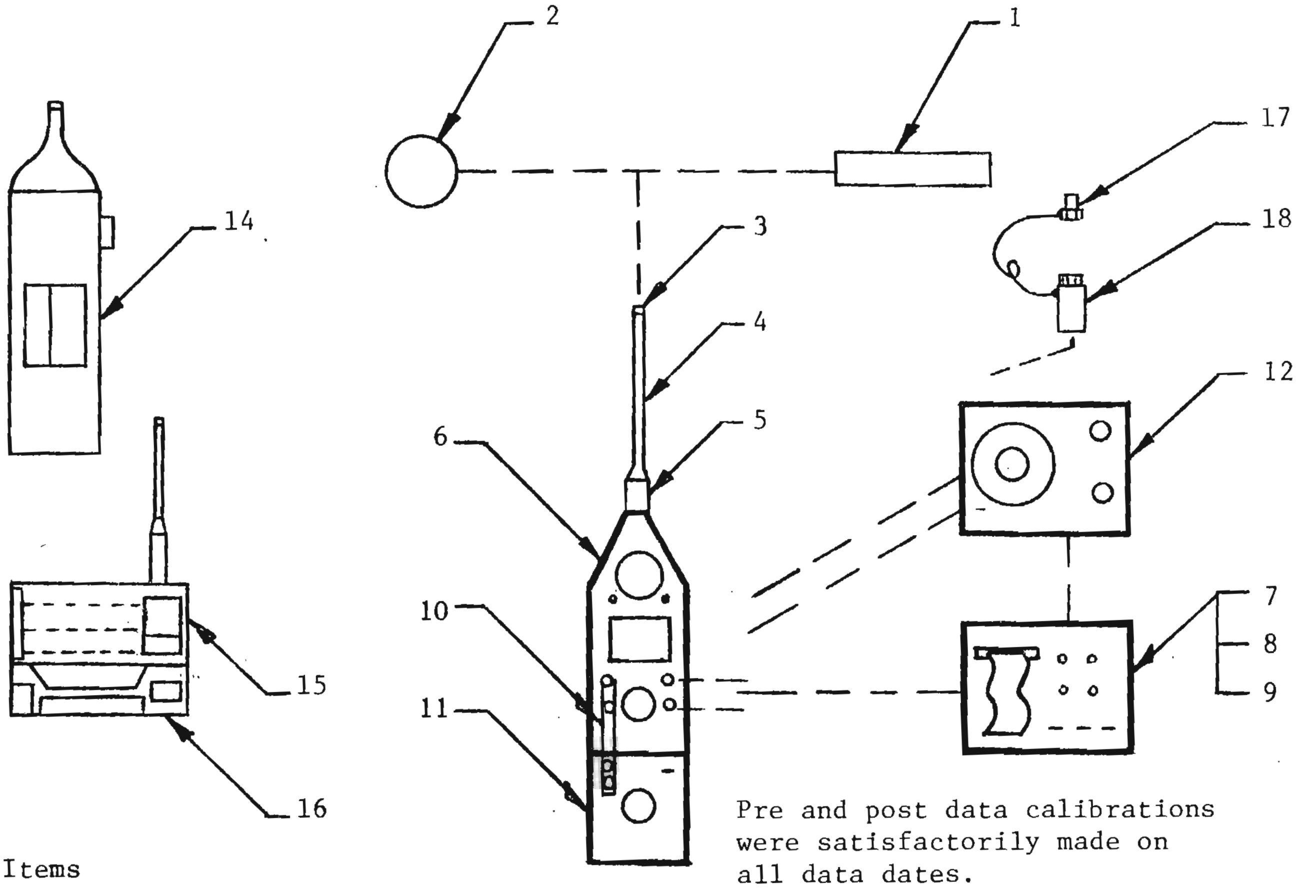


CNS, BAND MILL, & STACKER BLDG. DOSES

90 dBA CUTOFF LEVEL USED
( ) DOSES ARE THOSE WHEN
HIGH 80'S LEVELS SET = 90.
NO SCALE

LEE

MEASUREMENT EQUIPMENT USED:



Pre and post data calibrations were satisfactorily made on all data dates.

	Items Used		
	☒	1.	Pistonphone, Bruel and Kjaer Type 4220, Serial No. 577874.
	☒	2.	Windscreen, B & K Type UA 1237, ½".
	☒	3.	Condenser Microphone, B & K Type 4165, ½", with Normal Protecting Grid, Serial No. 646436.
	☒	4.	Flexible Extension Rod, B & K Type UA 0196.
	☒	5.	Preamplifier, B & K Type ZC 0007.
	☒	6.	Impulse Precision Sound Level Meter, B & K Type 2209, Ser. No. 594740.
	☒	7.	Portable Graphic Level Recorder, B & K Type 2306, Ser. No. 616003.
	☒	8.	50 dB Logarithmic Potentiometer, B & K Type ZR 0016.
	☒	9.	25 dB Logarithmic Potentiometer, B & K Type ZR 0015.
*	☒	10.	External Filter Connector Bar, B & K Type JP 0400.
*	☒	11.	Octave Band Filter Set, B & K Type 1613, Ser. No. 576483.
	☐	12.	Tunable Band Pass Filter Set, 3% and 23%, B & K Type 1621, S/N 615760.
	☒	13.	Avant Tripod with Linhof Head, Not Shown.
	☐	14.	General Radio 1982 Precision Sound Level Meter, Type I.
	☐	15.	Sound Level Meter and Spectrum Analyzer, Ivie IE-30A, Ser.No. 805A954.
	☐	16.	Microprocessor Audio Analyzer, Ivie IE-17A, Serial No. 911A530.
	☐	17.	Accelerometer, B & K Type 4366, Ser. No. 574693.
	☐	18.	Integrator, B & K Type ZR 0020.

* In connection with other phases.

TASK NO. ________

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT ________________ DATA DATE ________ BY ________
OPERATION ________________ START/STOP TIME ________________
EMPLOYEES ________________ DAILY HOURS EXPOSED ________________
NOTES ________________ TOTAL SAMPLE ________ SAMPLE RATE ________

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = ____ $\sum P$ = ________ (1)

$\frac{\sum P}{\sum n}$ = ____ = $\frac{\quad}{\_\_\_\_}$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \frac{\_\_\_\_}{\_\_\_\_}$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fm' (4)

Equivalent Noise Level ____ dBA ((90)) (5)
____ dBA ((85))
____ dBA ((80))

L = 16.61 log (16F) + 85. $F = 1/T_p = (1/16)2^{[(L-85)/5]}$.

INSTRUCTIONS FOR EQUIVALENT NOISE EXPOSURE DATA SHEET

A. Supply the information needed at the top of the Form (all but study "Start/Stop Time").

B. Select the measurement location, adjust the sound level meter (previously calibrated), and briefly observe the operation to be studied.

C. When ready, note start time, then record the dB(A), slow response, sound pressure level on the Form every 15 seconds. More frequent rates improve accuracy.

D. Continue Step C for a representative time period; typically 5 minutes (20 measurements), noting the level every 15 seconds; longer or shorter periods may be used if they are representative. When finished, record the stop time.

E. Add up the number of occurrences for each sound level, and record each sum in the "n" column.

F. Multiply each "n" by the adjacent "F" value, and place the product in the adjacent "P" column.

G. Sum all the values of "n" and place the value in the appropriate box below the column. Do the same for the "P" values. See Step "1" on Form.

H. Using the space provided in equation (2), divide the "P" sum by the "n" sum, and record the result.

I. Divide the actual exposure time by shift time; the Form assumes an 8-hour shift. Record the result as noted in equation (3).

J. Multiply the result of equation (2) by the result of equation (3) using equation (4). Record the result.

K. Using the result of equation (4), find the closest corresponding value of "F" in the Table. Look to the left, find the dB(A) value associated with "F", and record this Equivalent Noise Level for the shift.

NOTES:

1) "F" is the reciprocal of the permissible exposure time for each sound level, or $F = \frac{1}{T_p}$, where $T_p = \frac{16}{2^{\left(\frac{L-85}{5}\right)}}$ and L = dB(A) sound pressure level having a permissible exposure time of T_p hours.

2) From the above equation $F = \frac{1}{T_p} = \frac{2^{\left(\frac{L-85}{5}\right)}}{16}$ and $L = \frac{5 \log (16/T_p)}{\log 2} + 85 = \frac{5 \log (16F)}{\log 2} + 85 = 16.61 \log (16F) + 85.$

3) The larger the P the larger the exposure contribution. Look for items during cycles which give this dB(A) level for most economical dB(A) reduction per $.

4) If you want the 90 dB(A) cutoff instead of 85 dB(A), then make "P" values 0 for 85-89 levels, but get credit for time less than 90 dB(A) by keeping the n's from time below 90 dB(A).

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER								
GROUP NAME								
WORKER NAME								
NO. IN GROUP								

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = ____________

or ____________ %

COMPANY ______________________

DATE ____________

BY ____________

APPENDICES

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER B1	01	Lunch/Break	0	<90			.83	0
	02	Rest Room	0	<90			.25	0
GROUP NAME HEADRIG OPERATOR	79	OPERATING	.1250	90			3.32	.415
	80	IDLE	0	<90			2.22	0
	83	DOWN	0	<90		25.4	1.88	0
WORKER NAME								
NO. IN GROUP 1								

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = .415

or 42 %

COMPANY Continental F.T. - 152

DATE 9/22/81

BY G Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	**TASK NO. & NAME**		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER B2-3	01	Lunch/Break	0	<90			.83	0
	02	Rest Room	0	<90			.25	0
GROUP NAME BAND MILL EDGER OPERATOR & HELPER	78	OPERATING	.2728	95.6		44.7	3.32	.906
	56	IDLE	.1650	92.0		29.9	2.22	.366
	57	DOWN	0	<90		25.4	1.88	0
WORKER NAME								
NO. IN GROUP 2								

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.27

or 127 %

COMPANY Continental F.I. - 152

DATE 9/21/81

BY G. Lu

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④ = ③ x ②	⑤ = ④ x ①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	Lunch/ Break	0	<90			.83	0
B4	02	Rest Room	0	<90			.25	0
GROUP NAME	96	CUTTING	.5372	100.5		49.6	3.69	1.982
TRIM SAW OPERATOR	97	IDLE/ CLEAR	.379	98		25	1.85	.701
(IN	98	DOWN	0	<90		25.4%	1.88	0
BAND MILL)								
WORKER NAME								
NO. IN GROUP								
1								

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 2.683

or 268 %

COMPANY Continental F.I-152

DATE 9/21/81

BY C. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER B5	01	Lunch Break	0	<90			.83	0
	02	Rest Room	0	<90			.25	0
GROUP NAME LIFT TRUCK TO BM HEADING INFEED	89	RUNNING CYCLE	0.	<90			6.42	0
	06	Fuel/Maintenance	0	<90			1.00	0
WORKER NAME Willie Moye								
NO. IN GROUP 1								

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental Forest Ind. - 152

DATE 9/11/81

BY G. Lee

A4

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER B6	01	Lunch/Break	0	<90			.83	0
	02	Rest Room	0	<90			.25	0
GROUP NAME Talley Man	90	AT STATION WORKING	.330	97		50%	3.71	1.224
	99	IDLE AT STA.	0	<90		25%	1.86	0
	34	CLEAN-UP @TS	.1584	91.7		25%	1.85	.293
WORKER NAME								
NO. IN GROUP 1								

∑⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.517

or 152 %

COMPANY Continental Forest Ind - 152

DATE 9/22/81

BY G. Lee

A5

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	LUNCH / BREAKS	0	<90			.83	0
87	02	REST ROOM	0	<90			.25	0
GROUP NAME	97	AT BM TRIM SAW, IDLE	.3790	98		35%	2.60	.9854
BAND MILL SUPERVSOR	96	AT TRIM SAW, CUTTING	.5372	100.5		10%	.74	.3975
	60	AT GREEN CHAIN	.220	94.1			1.98	.4356
	90	AT TALLY POSITION	.3283	97.0		10	.74	.2429
WORKER NAME	91	AT SUP. OFFICE	0	<90			.25	0
	06	AT MAINT. BLDG	0	<90		10	.74	0
NO. IN GROUP 1	56	AT EDGER POSITION	.1650	92.0		5	.37	.0611

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 2.1225

or 212 %

COMPANY Continental F.I. - 152

DATE 7/23/81

BY G. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER B8	01	LUNCH/BREAK					.83	0
	02	REST ROOM					.125	0
GROUP NAME VIBRATING CONVEYOR ATTENDENT/ CLEAN-UP	100	ATTENDING CHIPPER	1.1991	106.3			.76	.911
	101	CLEAN-UP UNDER BM	.6263	101.6			2.22	1.39
	34	CLEAN-UP NEAR TS	.1584	91.7			2.22	.352
	105	CLEAN-UP UNDER CNS	.1932	93.1			2.22	.429
WORKER NAME [redacted]								
NO. IN GROUP 1								

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 3.08

or 308 %

COMPANY Continental F. I. - 152

DATE 9/22/81

BY G. Lee

A7

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C1	01	LUNCH/BREAK	0	<90			.83	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME JIB CRANE	77	Operating	0	<90		100	7.42	0
WORKER NAME								
NO. IN GROUP 1								

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Le

or 0 %

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C2	01	LUNCH/BREAKS	0	<90			.83	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME CNS Mill Supervisor	92	CNS Sup. Office	0	<90			.13	0
	91	PH. Sup. Office	0	<90			.25	0
	48	IN CNS Mill AS TS	.5236	100.3		35	2.60	1.3614
	75	LOG LINE AS CNS INF'D	.3388	97.2		10	.74	.2507
WORKER NAME	105	UNDER MILL	.1932	93.1		5	.37	.0715
	26	CRANE YARD	0	<90		10	.74	0
NO. IN GROUP 1	06	MAINT AREA	0	<90		10	.74	0
	90	TALLY AREA	.3283	97.0		10	.74	.2429
	54	NO. 1 TIPPLE	.3218	96.8		15	1.11	.3572

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 2.284

or 228 %

COMPANY Continental F.I. - 152

DATE 9/23/81

BY G. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C 3		LUNCH / BREAKS					.83	
	02	REST ROOM					.25	
GROUP NAME Slasher #1	70	Idle at work station	0	<90		20%	1.48	0
	71	Cutoff saw operation	0	<90		80%	5.94	0
WORKER NAME								
NO. IN GROUP 1								

8.50 ✓

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F.J. - 152

DATE 9/9/81

BY G Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		1/T_p = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	LUNCH/BREAKS	0	<90			.83	0
C4	02	REST ROOM	0	<90			.25	0
GROUP NAME	69	Kicker Cycle	.1523	91.4			7.42	1.130
No. 1 KICKOUT								
WORKER NAME								
NO. IN GROUP 1								

∑⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.13

or 113 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	LUNCH/BREAKS	0	<90			.83	0
C5	02	REST ROOM	0	<90			.25	0
GROUP NAME	73	Idle in booth	0	<90		10%	.74	0
No 2 Slasher	72	RUNNING	0	<90		90%	6.68	0
WORKER NAME								
NO. IN GROUP								
1								

8.5 ✓

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F. I. - 152

DATE 9/9/81

BY G. Lu

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C6	01	Lunch/Break	0	<90			.83	0
	02	Rest Room	0	<90			.25	0
GROUP NAME CHIP-N-SAW operator	46	CHIP-N-SAW OPERATION	0	<90		85%	6.31	0
	50	IDLE	0	<90		10%	.74	0
	84	DOWNTIME	0	<90		5%	.37	0
WORKER NAME Jerry Merritt								
NO. IN GROUP 1								

NOTE: S. Dudley determined that 85/10/5 split was realistic for use in CNS mill.

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G[illegible]

CNS [illegible]

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① $1/T_p$ = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER CT	01	Lunch/Break	0	<90			1.17	0
	02	Rest Room	0	<90			.25	0
GROUP NAME Edger Operator	47	Edger Operation	.5567	100.8		85%	6.02	3.35
	51	Idle	.2452	94.9		10%	.71	.17
	85	Downtime	0	<90		5%	.35	0
WORKER NAME John Allen								
NO. IN GROUP 1								

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 3.52

or 352 %

COMPANY Continental F.T. - 152

+20 min Break

DATE 9/9/81

BY G.L.

Note S. Dudley determined that 85/10/5 split was realistic for use in CNS mill.

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① $1/T_p$ = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C8	01	Lunch/Break	0	<90			1.17	0
	02	Rest Room	0	<90			.25	0
GROUP NAME TRIM SAW operator and relief operator	48	TRIM SAW OPERATION, CUT	.5236	100.3		85%	6.02	3.15
	52	IDLE	.3789	98.0		10%	.71	.27
	86	DOWNTIME	0	<90		5%	.35	0
WORKER NAME Willie Tabler								
NO. IN GROUP 2								

8.50 ✓

+20 min break

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 3.42

or 342 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Lee

Note: S. Dudley determined that a 85/10/5 split was realistic for use in CNS mill

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		1/T_p = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C9	01	Lunch/Break	0	<90			1.17	0
	02	Rest Room	0	<90			.25	0
GROUP NAME TRIM SAW HELPER	49	TRIM SAW OPERATION	.4270	98.9		85%	6.02	2.57
	53	IDLE	.4013	98.4		10%	.71	.28
	86	DOWNTIME	0	<90		5%	.35	0
WORKER NAME J. Nails								
NO. IN GROUP 1								

+20 min. break

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 2.85

or 285 %

COMPANY Continental F.T. - 152

DATE 9/9/81

BY G. Lee

Note: S. Dudley determined ~~that~~ 85/10/5 split was realistic for use in CNS mill.

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C10	01	Lunch/Break	0	<90			1.17	0
	02	Rest Room	0	<90			.25	0
GROUP NAME #1 Tipple	54	Tipple Control	.3218	96.8		85%	6.02	1.94
	59	Idle	0	<90		10%	.71	0
	87	DownTime	0	<90		5%	.35	0
WORKER NAME Jerry Best								
NO. IN GROUP 1								

8.50 ✓

+20 min breaks

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.94

or 194 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Lee

Note: S. Dudley determined that 85|10|5 split [illegible] realistic for use on [illegible] mill

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	Lunch/Break	0	<90			1.17	0
C11	02	Rest Room	0	<90			.25	0
GROUP NAME	55	Tipple control	.1674	92.1		85%	6.02	1.01
#2 Tipple	58	Idle	0	<90		10%	.71	0
& TIPPLE HELPER	88	DownTime	0	<90		5%	.35	0
WORKER NAME								
James Dixon								
NO. IN GROUP								
2								

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.01

or 101 %

COMPANY Continental F.I. - 152

+20 min. breaks

DATE 9/9/81

BY G. Lu

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C12	01	Lunch/Break	0	<90			.83	0
	02	Rest Room	0	<90			.25	0
GROUP NAME Bander	65	working at line	0	<90			7.42	0
WORKER NAME								
NO. IN GROUP 1								

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental Forest Ind - 152

DATE 9/22/81

BY G. Lee

A19

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	Lunch/Break	0	<90			1.17	0
C13	02	Rest Room	0	<90			.25	0
GROUP NAME	94	Empty Sorter (auto Sorts) + idle	0	<90		95%	6.73	0
Sorter Attendant	95	Downtime	0	<90		5%	.35	0
WORKER NAME								
Jimmy Bond								
NO. IN GROUP								
1								

+20 min break

8.50✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F.T. - 152

DATE 9/15/81

BY G. Lee

A20

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① $1/T_p$ = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C14	01	Lunch/Break	0	<90			.83	0
	02	Rest Room	0	<90			.25	0
GROUP NAME Green Chain people — FIRST MAN ONLY	60	Lumber Sorting in Green Area	.220	94.1		85%	6.31	1.39
	102	IDLE	0	<90		10%	.74	0
	104	DOWN	0	<90		5%	.37	0
WORKER NAME								
NO. IN GROUP 1								

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.39

COMPANY Continental FT. - 152

DATE 9/22/01

BY G. Lee

or 139 %

A21

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C15	01	Lunch/brk	0	<90			.83	0
	02	Rest room	0	<90			.25	0
GROUP NAME Green chain people – on ground – 2ND POSITION BACK	82	Lumber sort in line	0	<90		85%	6.31	0
	103	Idle	0	<90		10%	.74	0
	104	Down	0	<90		5%	.37	0
WORKER NAME								
NO. IN GROUP 4 (VARIE								

TO 7 or more)

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

COMPANY Continental Forest Industries

DATE 9/22/81

BY G. Lee

or 0 %

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	Lunch/Break	0	<90			.83	0
C16	02	Rest Room	0	<90			.25	0
GROUP NAME		Greenchain to .asga						
Fork Lift Operator	76	Stacker bldg.	0	<90			6.42	0
Green Chain &		Idle 0						
Trucks	06	Fuel/maint.	0	<90			1,00	0
WORKER NAME								
James Floyd								
NO. IN GROUP								
1								

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Lee

A23

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER C17	01	LUNCH/BREAK	0	<90			.83	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME CHIP TRUCK LOADER RR car man	93	BEHIND CNS & BEHIND RR CAR	0	<90			4.42	0
	66	NEAR PM office AT TRUCK LOAD.	.1479	91.2			3.00	.444
WORKER NAME ~~G. Neighbors~~ Livingston								
NO. IN GROUP 1								

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = .444

or 44 %

COMPANY Continental Forest Industries

DATE 9/22/81

BY G. Lee

A2

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		1/T_p = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P1	01	LUNCH/BREAK	0	<90			50/60 = ,83	0
	02	REST ROOMS	0	<90			.25	0
GROUP NAME STICK MAN	03	STICK PICKUP near b'dwn	.2778	95.8			1.72	.478
	04	DOWN — CLEAN-UP	0	<90		25.4	1.88	0
	05	CUTS UP STICKS	.7451	102.9			.25	.183
	45	stick p/u, bldg	0	<90			3.57	0
WORKER NAME								
NO. IN GROUP 1								

8.5 hr ✓

∑⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = .661

or 66 %

COMPANY Continental F. I. - 152

DATE G. Lee

BY 9/21/81

A25

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		1/T$_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	LUNCH/BREAK	0	<90			.83	0
P2	02	REST ROOM	0	<90			.25	0
GROUP NAME		DRY KILN						
LIFT INFEED	07	BREAKDOWN	0	<90			6.42	0
#2 Hyster (250)		DRY STORAGE						
	06	FUEL/MAINT	0	<90			1.00	0
WORKER NAME								
NO. IN GROUP								
1								

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P3	01	Lunch/BREAK	0	<90			.83	0
	02	Rest Room	0	<90			.25	0
GROUP NAME MACHINE FEEDER (INFEED)	08	FEEDING PL.	.9114	104.3		64.7	4.80	4.37
	09	DOWNTIME	0	<90		25.4	1.88	0
	10	IDLE (PLANER RUNNING)	0	<90		9	.67	0
	19	NO LUMBER INSIDE ENCL	.5961	101.3		1	.07	.042
WORKER NAME								
NO. IN GROUP 1								

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 4.412

or 441 %

COMPANY Continental F.J. - 152

DATE 9/9/81

BY G. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P4	01	LUNCH/BREAK	0	<90			1.17*	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME GRADER	11	GRADING	.3176	96.7		60.1	4.46	1.42
	12	IDLE	0	<90		10	.74	0
	13	DOWNTIME		<90		25.4	1.88	0
WORKER NAME								
NO. IN GROUP 1								

* EXTRA 20 min. BREAK TO HIM PER INTERVIEW

8.5 ✓

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.42

or 142 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Lee

BREAK +20/DAY FOR THIS MAN

BRK

30 min

40 min

70 min

70/60 = 1.17

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	LUNCH/BREAK	0	<90			1.17*	0
P5	02	REST ROOM	0	<90			.25	0
GROUP NAME	14	GRADING	.2186	94.0		60.1	4.57	.999
GRADER	15	IDLE	0	<90		10	.71	0
	16	DWNTIME	0	<90		25.4	1.80	0
WORKER NAME								
NO. IN GROUP 1								

* EXTRA 20 min BREAK TO HIM PER INTERVIEW

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = .999

or 100 %

+20/DAY BREAK [illegible]

COMPANY Continental F.J. - 152

DATE 9/9/81

BY G. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		1/T_p = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	Lunch /BREAK	0	<90			.83	0
Pℓ	02	REST ROOM	0	<90			.25	0
GROUP NAME	17	TOOL ROOM	0	<90		40	2.96	0
PLANER TECH.	61	MILLBRIGHT AREA	.1968	93.3		30	2.23	.439
	14	GRADER TABLE	.2186	94.0		25	1.86	.407
	18	CUTTING INSIDE ENCLOS.	2.430	111.4		2	.15	.365
WORKER NAME	19	NO LUMBER INSIDE ENCLOS.	.5961	101.3		3	.22	.131
NO. IN GROUP 1								

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.342

or 134 %

COMPANY Continental F.I. - 152

DATE 6/9/81

BY G. Lu

A30

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	Lunch/BREAK	0	<90			.83	0
P7	02	REST ROOM	0	<90			.25	0
GROUP NAME	20	CUTTING	.2605	95.3		64.7	4.80	1.25
TRIMMER (TRIM SAW OP.)	21	IDLE	0	<90		10	.74	0
	22	DOWN	0	<90		25.4	1.88	0
WORKER NAME								
NO. IN GROUP 1								

5.5✓

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.25

or 125 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P8	01	LUNCH/BREAK	0	<90			.83	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME PULLER- (NEAR TRIM)	23	TRIM CUTTING/PULLING	.1961	93.2		64.7	4.80	.941
	24	IDLE	.1250 *	$90.\overset{=}{0}$		10	.74	.093
	25	DOWN	0	<90		5.4 } 25.4	.40 }	0
	41 28	CLEANUP	0	<90		20	1.48	
WORKER NAME								
NO. IN GROUP 1								

8.5 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.034

or 103 %

COMPANY Continental F.J. - 152

DATE 9/9/81

BY G. Lee

* CALCULATED EQUIV. LEVEL = 89.9 ≅ 90
CALCULATED T_p^{-1} = .1235 ≅ .1250
(85 CUTOFF LEVEL = 90.9)

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P9-12	01	LUNCH/BREAK	0	<90			.83	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME Pullers (TRIM TO PACKAGING)	27	CUTTING TRIM SAW - PULLING	.125 *	≅90		64.7	4.80	.60
	28	IDLE	0 **	<90		10	.74	0
	29	DOWN	0	<90		5.4 } 25.4	.40	0
	41/28	CLEAN UP	0	<90		20	1.48	0
WORKER NAME								
NO. IN GROUP 4								

8.5 ✓

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = .60

or 60 %

COMPANY Continental F.J. - 152

DATE 9/9/81

BY G. Lee

* CALCULATED LEVELS ≅ 90 ((95)) $1/T_p$ = .1212
= 91.2 ((35)) $1/T_p$ = .1471

** CALCULATED LEVELS = <90 ((90)) $1/T_p$ = .0635
= 87.9 ((85)) $1/T_p$ = .0930

A33

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	Lunch/BREAK	0	<90			.83	0
P13	02	REST ROOM	0	<90			.25	0
GROUP NAME	30	PACKAGE MAKING	0	<90		65	4.83	0
PACKAGE MAN	31	IDLE	0	<90		15	1.11	0
	27	PULL (W9-12)	.125	≅90		10	.74	.09
	41 28	CLEANUP	0	<90		10	.74	0
WORKER NAME								
NO. IN GROUP								
1								

5.5 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = .09

or 9 %

COMPANY Continental F.I.-152

DATE 9/9/81

BY G. Lu

A34

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① $1/T_p$ = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P1L	01	LUNCH/BREAK	0	<90			.83	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME TICKET MAN	32	BANDING	0	<90		65	4.83	0
	33	MARKING	0	<90				0
	31	IDLE	0	<90		15	1.11	0
	27	PULL (W9-12)	.125	≈90		10	.74	.09
WORKER NAME	41/28	CLEANUP	0	<90		10	.74	0
NO. IN GROUP 1								

8.5 ✓

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = .09

or 9 %

COMPANY Continental F.J. - 152

DATE 9/11/81

BY G.Lu

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	Lunch/Break	0	<90			.83	0
P15/16	02	Rest Room	0	<90			.25	0
GROUP NAME	35	@ Ticket Out.	0	<90			6.42	0
Lift Outfeed		Load RR/Trks						
& Lift Shipping		Stack in Shed						
	06	Fuel/Maint	0	<90			1.00	0
WORKER NAME								
NO. IN GROUP 2								

8.5 ✓

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G Lu

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P17-18	01	Lunch /BREAK	0	<90			.83	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME CAR TIE DOWN	36	+TRUCK RRA TIE DWN	0	<90		50	3.71	0
	37	CLEANUP (USUALLY OUTSIDE)	0	<90		50	3.71	0
WORKER NAME								
NO. IN GROUP 2								

8.50 ✓

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Lee

A37

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		1/T_p = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	LUNCH/BREAK	0	<90			.83	0
P19	02	REST ROOM	0	<90			.25	0
GROUP NAME CLEAN-UP & ROUND TABLE	38	STICKING @ STA.	.2717	95.6		80	5.94	1.61
	39	at CONVEYOR @ TRIM SAW	.2725	95.6		5	.37	.101
	40	DOWN	0	<90		5	.37	0
	41	IDLE & CLEANUP	0	<90		10	.74	0
WORKER NAME								
NO. IN GROUP 1								

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.711

COMPANY Continental F. I. - 152

DATE 9/9/81

BY G. Lee

or 171 %

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P20	01	LUNCH/BREAK	0	<90			.83	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME QC MAN	11	@ P4/5 STA. RUNNING	.3176	96.7		60	4.46	1.416
	03	BREAKDOWN AREA	.2778	95.8		10	.74	.2056
	23	SORT CHAIN	.1961	93.2		10	.74	.1451
	37	DRY/PLANED LUMBER STACK	0	<90		20	1.48	0
WORKER NAME								
NO. IN GROUP 1								

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.767

or 177 %

COMPANY Continental F.J. - 152

DATE 9/9/81

BY G. Lu

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		1/T_p = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P21	01	LUNCH/BREAK	0	<90			.83	0
	02	REST ROOM	0	<90			.25	0
GROUP NAME PLANER MILL SUPERVISOR	23	SORT CHAIN	.1961	93.2		≈50	3.52	.690
	03	BRKDOWN (NEAR STICK)	.2778	95.8		10	.74	.206
	38	Round table + office area	.2717	95.6		15	1.11	.302
	08	PLANER INFEEDING	.9114	104.3		5	.37	.337
WORKER NAME BUDDY LOVE	42	OFFICE (TRAILER)	0	<90		10	.74	0
	37	STORAGE SHELTER RAIL CARS	0	<90		5	.37	0
NO. IN GROUP 1	43	DRY KILNS	0	<90		5	.37	0
	19	INSIDE PLANER ENC. @ SETUP	.5961	101.3			.20	.119

8.50 ✓

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.654

or 165 %

COMPANY Continental F.I. - 15L

DATE 9/9/81

BY G. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P22	01	Lunch/break	0	<90			.83	0
	02	Rest room	0	<90			.25	0
GROUP NAME SHIPPING CLERK	21	Front office	0	<90			1.00	0
	37	PM ship-yard	0	<90			1.00	0
	38	Round table area	.2725	95.6			.42	.114
	42	Planer Mill Office	0	<90			5.00	0
WORKER NAME ERNIE GRAY								
NO. IN GROUP 1								

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = .114

or 11 %

COMPANY Continental F.I. - 152

DATE 9/9/81

BY G. Lee

AFI

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P23	01	LUNCH/BREAK	0	<90			.83	0
	02	RESTROOM	0	<90			.25	0
GROUP NAME PLANT SUPERINTENDENT	91	SUP. OFFICE	0	<90			.5	0
	81	MAIN OFFICE	0	<90			.5	0
	48	CNS TS	.5236	100.3			1.5	.7854
	60	SORTER, GREEN	.220	94.1			1	.2200
WORKER NAME ED HESTER	43 74	DRY KILN	0	<90			.5	0
	75	LOG LINE NEAR CNS IN-FEED	.3388	97.2			1	.3388
NO. IN GROUP 1	62	STACKER	0	<90			1	0
	06	MAIN. SHOP	0	<90			1	0
	37	LUMBER YD.	0	<90			.42	

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 1.344

or 134 %

COMPANY Continental Forest Ind - 152

DATE 9/22/81

BY G. Lee

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER P24	01	LUNCH & BREAKS	0	<90			.83	0
	02	REST ROOM	0	<90			,25	0
GROUP NAME PLANER MILL MAINT, MAN.	08	FEEDING @ INFEED FAR SIDE @ DOOR	,9114	104,3		5	.37	,337
	44	MAINT SHOP @ TRAILER-OUT	.3073	96.5		≈70	5.07	1,56
	31	AREA OF PACK. MACH. (NOT RUNNING)	0	<90		10	,74	0
	106	DOWN TIME MAINT (AT LUNCH)	0	<90			,50	0
WORKER NAME R. Harris	11	TOWARD OFFICES @ OUTFEED	,3176	96.7		5	,37	,1175
	43/74	ALL OFF @ DRY KILN	0	<90		5	.37	0
NO. IN GROUP 1								

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 2.01

or 201 %

COMPANY Continental F.I. -152

DATE 9/23/81

BY G. Lee

A43

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

			①		②	③	④=③x②	⑤=④x①
WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		$1/T_p$ = Fm for TASK, HR^{-1}	dBA	TOTAL SHIFT TIME, TST, HR.	% TST/100 at TASK	NO. HOURS AT TASK	TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	LUNCH/BREAKS	0	<90			.83	0
S1	02	REST ROOM	0	<90			.25	0
GROUP NAME	63	IDLE	0	<90		10%	.74	0
Stacker Oper.	62	STOCKER OPERATION	0	<90		90%	6.68	0
WORKER NAME								
NO. IN GROUP								
1								

8.5 ✓

$\sum$⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F.I. -152

DATE 9/9/81

BY G. Lee

A44

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER	01	LUNCH/BREAKS	0	<90			.83	0
52	02	REST ROOM	0	<90			.25	0
GROUP NAME	64	Conveyor attendent-all go	0	<90		85%	6.31	0
Transfer Operator	63	IDLE + CLEAN up	0	<90		15%	1.11	0
WORKER NAME								
NO. IN GROUP 1								

Σ⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

or 0 %

COMPANY Continental F.I - 152

DATE 9/22/81

BY G Lee

A45

WORKER OR WORKER GROUP DOSE COMPUTATION SHEET

WORKER OR WORKER GROUP NO. & NAME	TASK NO. & NAME		① 1/T_p = Fm for TASK, HR^{-1}	dBA	② TOTAL SHIFT TIME, TST, HR.	③ % TST/100 at TASK	④=③x② NO. HOURS AT TASK	⑤=④x① TASK DOSE CONTRIBUTION, %/100
I.D. NUMBER S3-5	01	Lunch/Break	0	<90			.83	0
	02	Rest Room	0	<90			.25	0
GROUP NAME STICK LAYERS	68	Idle	0	<90		10	.74	0
	67	Stick laying	0	<90		90	6.68	0
WORKER NAME								
NO. IN GROUP 3								

8.50 ✓

∑⑤ = TOTAL WORKER OR WORKER GROUP DOSE, %/100 = 0

COMPANY Continental Forest Industries - 152

DATE 9/9/81

BY G. Lee

or 0 %

TASK NO. 01

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind

OPERATION BREAK ROOM AREA

EMPLOYEES ALL

NOTES

DATA DATE 2/20/81 BY G. Lee /S. Dudley

START/STOP TIME

DAILY HOURS EXPOSED

TOTAL SAMPLE ≈ 60 sec SAMPLE RATE N. A.

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	EVERYWHERE LESS THAN 73.		0.165	
93			0.189	
94	SEE TAPE		0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Existing Regulation Cutoff

$\sum n =$ ____ $\sum P =$ ____ (1)

$\frac{\sum P}{\sum n} =$ ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5)

<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 02

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/29/80 BY Lee
OPERATION Rest Room
START/STOP TIME
EMPLOYEES ALL
DAILY HOURS EXPOSED
NOTES door open
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Everywhere less than 96.		0.189	
94			0.218	
95			0.250	
96	See tape.		0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = ____ $\sum P$ = ____ (1

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
<85 dBA ((85))

L = 16.61 log (16F) + 85. F = $1/T_p$ = $(1/16)2^{[(L-85)/5]}$.

TASK NO. 03

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION New brkdown
EMPLOYEES Operator P1, stick man
NOTES

DATA DATE 2/20 + 2/29/80 BY Lee/Dudley + Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 42.5 + 24.2 66.7 sec
SAMPLE RATE .83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90	ǀǀ	2 2	0.125	.250
91	ǀ	1 1	0.144	.144
92	ǀǀ ǀǀ	2 2 4	0.165	.660
93	ǀǀǀ 𝍸ǀǀǀǀ	3 9 12	0.189	2.268
94	𝍸𝍸𝍸ǀǀ 𝍸ǀǀǀǀ	17 9 26	0.218	5.668
95	𝍸ǀ ǀǀǀ	6 3 9	0.250	2.250
96	𝍸𝍸ǀǀǀ ǀǀ	13 2 15	0.287	4.305
97	ǀǀǀǀ ǀ	4 1 5	0.330	1.650
98	ǀ ǀ	1 1 2	0.379	.758
99			0.435	
100	ǀ	1 1	0.500	.500
101			0.574	
102	ǀ	1 1	0.660	.660
103	ǀǀ	2 2	0.758	1.516
104			0.871	
105	ǀ	1 1	1.000	1.000
106	ǀ	1 1	1.149	1.149
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 82

ΣP = 22.778 (1

$\frac{\Sigma P}{\Sigma n} = \frac{22.778}{82} = .2778$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\quad}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 95.8 dBA ((90)) (5

95.8 dBA ((85))

$L = 16.61 \log (16F) + 85. \quad F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 05

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 4/1/80
BY G LEE
OPERATION STICK CUT UP
START/STOP TIME
EMPLOYEES STICK MAN
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 8 sec
SAMPLE RATE .33 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90	||	2	0.125	.250
91	|	1	0.144	.144
92	|	1	0.165	.165
93			0.189	
94	||	2	0.218	.436
95	|	1	0.250	.250
96	|	1	0.287	.287
97			0.330	
98	|	1	0.379	.379
99			0.435	
100			0.500	
101			0.574	
102	||	2	0.660	1.320
103	|	1	0.758	.758
104			0.871	
105	||	2	1.000	2,000
106	𝍸𝍸|	11	1.149	12.639
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 25$ $\Sigma P = 18.628$ (1)

$\frac{\Sigma P}{\Sigma n} = \frac{18.628}{25} = .7451 = F_m$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = T_a$ (3)

$F_m \times T_a = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ = F_m'$ (4)

Equivalent Noise Level 102.9 dBA ((90)) (5)
102.9 dBA ((85))
____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 06

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Cont. Forest
OPERATION Maintenance Shop Area
EMPLOYEES
NOTES

DATA DATE 9/18/81 BY G. Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95	Everywhere less than 85.		0.250	
96			0.287	
97	See tape		0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = ____ $\sum P$ = ____

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\quad}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90))
<85 dBA ((85))
____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

BS

TASK NO. 07

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind
DATA DATE 2/29/80 BY Lee
OPERATION Lift Truck Cycle - planer infeed
START/STOP TIME
EMPLOYEES Oper. P2, planer infeed Lift
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 365 Sec.
SAMPLE RATE 5 sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	𝍸𝍸𝍸𝍷𝍷𝍷𝍷	19	0.	0.
85	𝍸	5	0.062	.31
86	𝍸𝍷	6	0.072	.432
87	𝍷𝍷𝍷𝍷	4	0.082	.328
88	𝍸𝍷𝍷𝍷	8	0.095	.760
89	𝍸𝍷	6	0.109	.654
90	𝍸𝍸𝍷𝍷	12	0.125	1.500
91	𝍷𝍷𝍷	3	0.144	.432
92	𝍸𝍷	6	0.165	.990
93	𝍷𝍷𝍷	3	0.189	.567
94	𝍷𝍷	2	0.218	.436
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 74$

$\Sigma P = \frac{3.925}{6.409}$ (1

$$\frac{\Sigma P}{\Sigma n} = \frac{3.925}{74} = \frac{.0530}{.0866} \overset{\nearrow 0}{=} Fm \ (2) \longrightarrow$$

$$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = Ta \ (3)$$

$Fm \times Ta = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ = F\acute{m}$ (4)

Equivalent Noise Level <90 dBA ((90)) (5
87.4 dBA ((85))

$L = 16.61 \log (16F) + 85. \quad F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 08

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION Feeding
EMPLOYEES Planer infeed P3
NOTES 2x4x18 ① + ②, 2x4x20 ③

DATA DATE 2/20 + 2/29/80 BY Lee/Dudley + Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 138.3 sec (11.66 + 65.83 + 60.83) SAMPLE RATE .83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98	||	2 2	0.379	.758
99	||||	4 4	0.435	1.740
100	𝍸	5 5	0.500	2.500
101	|| | 𝍸𝍸||	2 1 12 15	0.574	8.610
102	|| | 𝍸𝍸||	3 12 15	0.660	9.90
103	| 𝍸𝍸| 𝍸𝍸𝍸|	1 11 16 28	0.758	21.224
104	|||| 𝍸𝍸𝍸𝍸|| 𝍸||||	4 22 9 35	0.871	30.485
105	||| 𝍸|| 𝍸|	3 7 6 16	1.000	16.000
106	|||| 𝍸𝍸𝍸𝍸 |||	4 20 3 27	1.149	31.023
107	| 𝍸 ||	1 5 2 8	1.320	10.56
108	𝍸𝍸| |||	11 3 14	1.516	21.224
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 169 ΣP = 154.024 (1

$\frac{\Sigma P}{\Sigma n}$ = $\frac{154.024}{169}$ = .9114 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_}{8}$ = ___ = Ta (3)

Fm x Ta = ___ x ___ = ___ = Fḿ (4)

Equivalent Noise Level 104.3 dBA ((90)) (5
104.3 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 10

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continentl Forest Ind.
OPERATION IDLE
EMPLOYEES P3 planer infeed op.
NOTES

DATA DATE 2/29/80 BY Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 245 sec. SAMPLE RATE 2.5 sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	||||	4	0.	0.
85	𝍸𝍸||	12	0.062	.744
86	𝍸𝍸	10	0.072	.720
87	𝍸𝍸𝍸|||	18	0.082	1.476
88	𝍸𝍸𝍸	15	0.095	1.425
89	𝍸𝍸|||	13	0.109	1.417
90	𝍸𝍸||	12	0.125	1.500
91	𝍸	5	0.144	.720
92	𝍸|	6	0.165	.990
93			0.189	
94			0.218	
95			0.250	
96	|	1	0.287	.287
97			0.330	
98	||	2	0.379	.758
99			0.435	
100			0.500	
101			0.574	
102	|	1	0.660	.660
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 99$

$\Sigma P = \frac{4.915}{10.697}$ (1)

$\frac{\Sigma P}{\Sigma n} = \frac{4.915}{99} = \frac{.0496}{.1081} \nearrow^{0} =$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ =$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent
Noise Level <90 dBA ((90)) (5
88.9 dBA ((85))

$L = 16.61 \log (16F) + 85. \quad F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 11

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION lumber caming
EMPLOYEES P4 GRADER, working
NOTES 2×4×18

DATA DATE 2/20/80 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
36.7 + 43.3
TOTAL SAMPLE 80.0 sec SAMPLE RATE .83 sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)		TOTAL OCCURRENCES PER LEVEL n			F	P=nxF
Less than 85						0.	0.
85						0.062	
86						0.072	
87						0.082	
88						0.095	
89						0.109	
90						0.125	
91						0.144	
92		𝍷		1	1	0.165	.165
93		𝍷		1	1	0.189	.189
94	𝍷𝍷	𝍸 𝍸 𝍷	2	11	13	0.218	2.834
95	𝍸 𝍷𝍷	𝍸 𝍸	7	10	17	0.250	4.250
96	𝍸 𝍸 𝍷𝍷𝍷	𝍸 𝍸 𝍷	13	11	24	0.287	6.888
97	𝍸	𝍸 𝍸 𝍷	5	11	16	0.330	5.280
98	𝍸 𝍷𝍷𝍷	𝍷𝍷𝍷𝍷	8	4	12	0.379	4.548
99	𝍷𝍷	𝍷	2	1	3	0.435	1.305
100	𝍸 𝍷	𝍷	6	1	7	0.500	3.500
101						0.574	
102	𝍷		1		1	0.660	.660
103						0.758	
104	𝍷		1		1	0.871	.871
105						1.000	
106						1.149	
107						1.320	
108						1.516	
109						1.741	
110						2.000	
111						2.297	
112						2.639	
113						3.031	
114						3.482	
115						4.000	

$\Sigma n = 96$ $\Sigma P = 30.49$ (1)

$\frac{\Sigma P}{\Sigma n} = \frac{30.49}{96} = .3176$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 96.7 dBA ((90)) (5

96.7 dBA ((85))

SAMPLE 1 → 97.5
SAMPLE 1+2 → 96.7

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 12

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION Planer running but not cutting,
EMPLOYEES P4 idle chains off
NOTES

DATA DATE 2/20/80 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 36.7 sec. SAMPLE RATE 1.67 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86	𝍸 I	6	0.072	~~.432~~ → 0
87	𝍸 𝍸	10	0.082	~~.82~~ → 0
88	𝍸	5	0.095	~~.475~~ → 0
89	II	2	0.109	~~.218~~ → 0
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n = \frac{23}{23}$ $\sum P = \frac{0}{1.945}$ (1)

$\frac{\sum P}{\sum n} = \frac{0}{23} = \frac{0}{.0846} = Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ = Ta$ (3)

$Fm \times Ta = \_\_\_ \times \_\_\_ = \_\_\_ = Fm'$ (4)

Equivalent Noise Level <90 dBA ((90)) (5)

87.2 dBA ((85))

Note: sheet 2 of 2 data not used, shows lower levels.

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 14

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION PS grader
EMPLOYEES grading w/ lumber
NOTES

DATA DATE 2/20 + 2/29/80 BY Lee/Dudley + Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 35 + 41.66 76.66 sec. SAMPLE RATE 0.83 sec.

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91	|||	3 3	0.144	.432
92	| 卌|||	1 8 9	0.165	1.485
93	| 卌 卌 卌|||	1 5 13 19	0.189	3.591
94	卌 |||| 卌|||| 卌 卌 卌 ||||	9 7 19 35	0.218	7.630
95	|||| 卌| 卌 |||	4 6 8 18	0.250	4.500
96	卌| || ||	7 2 9	0.287	2.583
97	|	1 1	0.330	.330
98			0.379	
99			0.435	
100		ADD'L	0.500	
101		FIRST	0.574	
102		RUN	0.660	
103		DATA	0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Existing Regulation Cutoff

$\Sigma n = 94$ $\Sigma P = 20.551$ (1)

$\frac{\Sigma P}{\Sigma n} = \frac{20.551}{94} = .2186 = Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ = Ta$ (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 94.0 dBA ((90)) (5
94.0 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 15

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 4/1/80 BY Lee
OPERATION idle - 75 & planer running, chains off
START/STOP TIME
EMPLOYEES P5, grader
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96	Less than 90.		0.287	
97			0.330	
98	Less than 85		0.379	
99			0.435	
100			0.500	
101	See tape.		0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (1

$\frac{\sum P}{\sum n} =$ ____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B12

TASK NO. 17

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind
OPERATION IDLE/GRINDING IN TOOL ROOM
EMPLOYEES Planer Technician, P6
NOTES

DATA DATE 2/20 + 2/29/80 BY Lee/Dudley & Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE ≈ 64 sec SAMPLE RATE N.A.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Everywhere less than 93		0.165	
93			0.189	
94			0.218	
95	Generally less than 84		0.250	
96			0.287	
97			0.330	
98	See tape.		0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (1

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5

<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 18

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/20 + 2/29/80 BY Lee/Dudley & Lee
OPERATION INSIDE ENCLOSURE, RUNNING LUMB.
START/STOP TIME
EMPLOYEES P6, PLANOR TECHNICIAN
DAILY HOURS EXPOSED
NOTES 2 x 4 x 18', doors closed
TOTAL SAMPLE 41.7 + 107.5 149.2 sec
SAMPLE RATE .83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106	|	1 1	1.149	1.149
107			1.320	
108	|||	3 3	1.516	4.548
109	卌 卌 |||| ||||	14 4 18	1.741	31.338
110	卌 卌 卌 卌 卌 || 卌 ||	27 7 34	2.000	68.000
111	|||| 卌 卌 卌 卌 卌 卌 |||	4 33 37	2.297	84.989
112	||| 卌 卌 卌 卌 卌 卌 卌 卌 卌 |||	3 48 51	2.639	134.589
113	卌 卌 卌 卌 卌 卌	30 30	3.031	90.93
114	卌 ||	07 7	3.482	24.374
115			4.000	

Σn = 181 ΣP = 439.917 (1

$\frac{\Sigma P}{\Sigma n}$ = $\frac{439.917}{181}$ = 2.430 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 111.4 dBA ((90)) (5

111.4 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 19

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/29/80 BY Lee
OPERATION w/o lumber (setup) inside end.
START/STOP TIME
EMPLOYEES P6, Planer Technician
DAILY HOURS EXPOSED
Two samp → 43.33 + 133.33
NOTES
TOTAL SAMPLE 176.7 sec SAMPLE RATE 1.67 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94	||	2	0.218	.436
95	|	1	0.250	.250
96	𝍸𝍸|	11	0.287	3.157
97	𝍸|	6	0.330	1.980
98	𝍸𝍸	10	0.379	3.790
99	𝍸|	6	0.435	2.61
100	𝍸𝍸||	12	0.500	6.00
101	𝍸𝍸||	12	0.574	6.888
102	𝍸𝍸𝍸|	16	0.660	10.56
103	𝍸𝍸|	11	0.758	8.338
104	𝍸𝍸||||	14	0.871	12.194
105	||||	4	1.000	4.000
106	|	1	1.149	1.149
107			1.320	
108	||	2	1.516	3.032
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

27 + 81 Σn = 108 ΣP = 64.384 (1

$\frac{\Sigma P}{\Sigma n} = \frac{64.384}{108} =$ .5961 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ =$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4) → Equivalent Noise Level 101.3 dBA ((90)) (5
101.3 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 20

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION CUTTING
EMPLOYEES TRIM SAW OPERATOR, P7
NOTES 2×4×13

DATA DATE 2/20/80 + 2/29/80 BY Lee + Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 11.7 + 55 + 51.7 118.3 sec SAMPLE RATE 1.67 sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	ǀ	1	0.189	.189
94	𝍸𝍸ǀǀ 𝍸ǀǀ	12 7	0.218	4.142
95	𝍸𝍸ǀǀǀǀ 𝍸𝍸ǀ	14 11	0.250	6.250
96	𝍸𝍸ǀǀǀǀ 𝍸𝍸ǀ	14 11	0.287	7.175
97	ǀ	1	0.330	.330
98	ǀ ǀ	1 1	0.379	.758
99	ǀ	1	0.435	.435
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 74 ΣP = 19.279 (1

$\frac{\Sigma P}{\Sigma n} = \frac{19.279}{74} = .2605$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 95.3 dBA ((90)) (5
95.3 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind DATA DATE 2/20/80 BY Lee/Dudley
OPERATION IDLE - SAWS + CONV. FROM M'BRIGHT GOING START/STOP TIME
EMPLOYEES P. Mill Trim Saw op., P7 DAILY HOURS EXPOSED
NOTES TOTAL SAMPLE 47.5 sec SAMPLE RATE 0.83 sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88	𝍸𝍸𝍸𝍸𝍸𝍸	30	0.095	2.85
89	𝍸𝍸𝍸𝍸	20	0.109	2.18
90	𝍸 I	6	0.125	.75
91	II	2	0.144	.288
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n = 58$ $\sum P = \underset{6.068}{1.038}$ (1)

$\frac{\sum P}{\sum n} = \frac{1.038}{58} = \frac{.0179}{.1046} = Fm$ (2) $\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ = Ta$ (3)

$Fm \times Ta = \_\_\_ \times \_\_\_ = \_\_\_ = Fm'$ (4)

Equivalent Noise Level <90 dBA ((90)) (5

88.7 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 23

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
OPERATION Sorting / going
EMPLOYEES PB, Sorter recept p.mill trim
NOTES All operating

DATA DATE 2/20 + 4/2/80 BY Lee
START/STOP TIME
DAILY HOURS EXPOSED
52.5 + 16.7 + 38.3 + 72.5 + 22.5
TOTAL SAMPLE 202.5 sec SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89		2 1 3	0.109	.327
90		5 3 8	0.125	1.000
91		5 8 13	0.144	1.872
92		19 23 42	0.165	6.93
93		12 31 43	0.189	8.127
94		11 42 53	0.218	11.554
95		3 31 34	0.250	8.5
96		4 17 21	0.287	6.027
97		6 6	0.330	1.980
98		7 7	0.379	2.653
99		1 5 6	0.435	2.61
100		1 8 9	0.500	4.500
101		1 1 2	0.574	1.148
102		1 1	0.660	.660
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

64 | 184

Σn = 248

ΣP = 57.561 (1

57.888

$\frac{\Sigma P}{\Sigma n}$ = $\frac{57.888}{248}$ = .2234 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 94.5 dBA ((90)) (5

94.5 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 24

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION 'IDLE
EMPLOYEES P. mill puller nearest Trim saw
NOTES

DATA DATE 2-29-80 BY Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 68.3 sec SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88	|||	3	0.095	~~.285~~ → 0
89	卌 卌 |	11	0.109	~~1.199~~ → 0
90	卌 卌 卌 卌 卌 |	26	0.125	3.250
91	卌 卌 ||||	14	0.144	2.016
92	卌 卌 卌 卌 ||	22	0.165	3.63
93	卌 |	6	0.189	1.134
94	|	1	0.218	.218
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = 83 $\sum P$ = 10.248 (1)
11.732

$\frac{\sum P}{\sum n} = \frac{10.248}{83} = \frac{.1235}{.1413}$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 89.9 ⇒ 90 dBA ((90)) (5
90.9 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 26

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 9/10/81 BY G. Lee
OPERATION CRANE YARD AREA
START/STOP TIME
EMPLOYEES
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Every where less than 92		0.189	
94			0.218	
95	level < 90 on equiv.		0.250	
96			0.287	
97	See tape		0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = ____ $\sum P$ = ____ (

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (
____ dBA ((85))
____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION Pulling (all operating)
EMPLOYEES P9-12
NOTES Second + other dry pullers

DATA DATE 2/20 + 4/2/80 BY Lee/Dudley + Lee
START/STOP TIME
DAILY HOURS EXPOSED
67.3 + 23.3 + 74.2
TOTAL SAMPLE 164.8 sec SAMPLE RATE 0.83 sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n			F	P=nxF
Less than 85					0.	0.
85					0.062	
86		7			0.072	~~.504~~ → 0
87		7			0.082	~~.574~~ → 0
88		24			0.095	~~2.28~~ → 0
89		17			0.109	~~1.853~~ → 0
90		16	17	33	0.125	4.125
91		2	19	21	0.144	3.024
92		4	40	44	0.165	7.260
93		2	23	25	0.189	4.725
94		1	11	12	0.218	2.616
95			7	7	0.250	1.750
96		1	2	3	0.287	.861
97					0.330	
98		1			0.379	
99					0.435	
100					0.500	
101					0.574	
102					0.660	
103					0.758	
104					0.871	
105					1.000	
106					1.149	
107					1.320	
108					1.516	
109					1.741	
110					2.000	
111					2.297	
112					2.639	
113					3.031	
114					3.482	
115		82	119		4.000	

Σn = 201

ΣP = 24.361 (1)
29.572

$\frac{\Sigma P}{\Sigma n}$ = $\frac{24.361}{201}$ = .1212 = Fm (2)
.1471

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level ≐ 90 (89.8) dBA ((90)) (5)
91.2 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16) 2^{[(L-85)/5]}.$

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TASK NO. 28

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
DATA DATE 2-29-80 BY Lee
OPERATION idle (T. Saw + planer idle)
START/STOP TIME
EMPLOYEES P9 - P12 (pullers)
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 78.3 sec SAMPLE RATE 1.67 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	卌 卌 IIIII	15	0.	0.
85	卌 I	6	0.062	~~.372~~→0
86	卌 I	6	0.072	~~.432~~→0
87	IIII	4	0.082	~~.328~~→0
88	III	3	0.095	~~.285~~→0
89			0.109	
90	卌 I	6	0.125	.750
91	I	1	0.144	.144
92	II	2	0.165	.330
93	II	2	0.189	.378
94			0.218	
95			0.250	
96	I	1	0.287	.287
97			0.330	
98			0.379	
99			0.435	
100	I	1	0.500	.500
101			0.574	
102	I	1	0.660	.660
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 48 ΣP = $\frac{3.049}{4.466}$ (1)

$\frac{\Sigma P}{\Sigma n} = \frac{3.049}{48} = \frac{.0635}{.0930}$ ~~=~~ 0 Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
87.9 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 30

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/20/80 BY Lee / Dudley
OPERATION PACKAGE MAKING
START/STOP TIME
EMPLOYEES PACKAGE MAN, 913
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 35.8 sec
SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	𝍸||	7	0.	0.
85	𝍸|||	8	0.062	~~.496~~
86	𝍸|	6	0.072	~~.432~~
87	𝍸||	7	0.082	~~.574~~
88	||||	4	0.095	~~.380~~
89	|	1	0.109	~~.109~~
90	|||	3	0.125	.375
91	||||	4	0.144	.576
92	|||	3	0.165	.495
93			0.189	
94	|	1	0.218	.218
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 44　　ΣP = 1.664 (1)
3.655

$\frac{\Sigma P}{\Sigma n} = \frac{1.664}{44} = \frac{.0378}{.0831} \nearrow 0$ = Fm (2)　　$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\quad}{8} = \underline{\quad}$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)　→　Equivalent Noise Level <90 dBA ((90)) (5

87.1 dBA ((85))

$L = 16.61 \log (16F) + 85.$　　$F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 31

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION IDLE — NEAREST PULLERS
EMPLOYEES PACKAGE MAN P13
NOTES

DATA DATE 2-20-80 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 35 + 47.5 82.5 Sec. SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)		TOTAL OCCURRENCES PER LEVEL n			F	P=nxF
Less than 85	𝍸𝍸𝍷𝍷𝍷	𝍸𝍸𝍸𝍸𝍸	13	25	38	0.	0.
85	𝍸𝍷𝍷𝍷𝍷	𝍸𝍸𝍷𝍷𝍷𝍷	9	14	23	0.062	1.426
86	𝍸𝍸	𝍸𝍸𝍷	10	11	21	0.072	1.512
87	𝍷𝍷𝍷	𝍷𝍷𝍷𝍷	3	4	7	0.082	.574
88	𝍷𝍷𝍷𝍷	𝍷𝍷𝍷	4	3	7	0.095	.665
89	𝍷𝍷		2		2	0.109	.210
90	𝍷𝍷	𝍷	2	1	3	0.125	.375
91						0.144	
92						0.165	
93						0.189	
94						0.218	
95						0.250	
96						0.287	
97						0.330	
98						0.379	
99						0.435	
100						0.500	
101						0.574	
102						0.660	
103						0.758	
104						0.871	
105						1.000	
106						1.149	
107						1.320	
108						1.516	
109						1.741	
110						2.000	
111						2.297	
112						2.639	
113						3.031	
114						3.482	
115						4.000	

Σn = 101

ΣP = .375 3.432 (1

$\frac{\Sigma P}{\Sigma n} = \frac{.375}{101} = \frac{.0037}{.034} \to 0 = \text{Fm}$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = \text{Ta}$ (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 32

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/20/80 BY Lee/Dudley
OPERATION BANDING
START/STOP TIME
EMPLOYEES TICKET MAN, P14
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 23.3 sec
SAMPLE RATE .83 s

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	||||| |||||		11	0.	0.
85	||	2	0.062	~~.124~~
86			0.072	
87	||	2	0.082	~~.164~~
88	||	2	0.095	~~.190~~
89	||	2	0.109	~~.218~~
90	||||	4	0.125	.500
91			0.144	
92	||	2	0.165	.330
93			0.189	
94	||	2	0.218	.436
95			0.250	
96			0.287	
97	||	2	0.330	.660
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 29$ $\Sigma P = 1.926$ (1)
2.622

$\frac{\Sigma P}{\Sigma n} = \frac{1.926}{29} = \frac{.0664}{.0904}$ →90 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ =$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
87.7 dBA ((85))

$L = 16.61 \log(16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 33

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION MARKING
EMPLOYEES TICKET MAN P14
NOTES

DATA DATE 2/20/00 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 26.7 sec SAMPLE RATE NA

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91	Always less than 90.		0.144	
92			0.165	
93	GENERALLY less than 86		0.189	
94			0.218	
95	See tape		0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n =$ ____ $\Sigma P =$ ____ (1

$\frac{\Sigma P}{\Sigma n} =$ ____ $=$ 0 $= Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $= Ta$ (3)

$Fm \times Ta =$ ____ $\times$ ____ $=$ ____ $= Fm'$ (4)

Equivalent Noise Level <90 dBA ((90)) (5
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 34

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 9/18/81 BY G. Lee
OPERATION BM TS conveyor dust pile
START/STOP TIME
EMPLOYEES
DAILY HOURS EXPOSED
NOTES at outer end of conveyor
TOTAL SAMPLE 28⅓ sec
SAMPLE RATE 1⅔ sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90	|	1	0.125	.125
91	𝍸|	6	0.144	.864
92	𝍸||||	9	0.165	1.485
93	||	2	0.189	.378
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 18$ $\Sigma P = 2.852$ (

$\frac{\Sigma P}{\Sigma n} = \frac{2.852}{18} = .1584 = Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ = Ta$ (3)

Fm x Ta = _____ x _____ = _____ = Fḿ (4)

$\longrightarrow$ Equivalent Noise Level 91.7 dBA ((90)) (

91.7 dBA ((85))

_____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 35

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2-29-80 BY Lee
OPERATION cycle of fork lift op.
START/STOP TIME
EMPLOYEES P15 + P16, Planer Mill Outfeed Lift truck
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 520 sec SAMPLE RATE 5 sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	卌 卌 卌 卌 卌 卌 卌 卌 ||	42	0.	0.
85	|||	3	0.062	.186
86	卌 |||	8	0.072	.576
87	||||	4	0.082	.328
88	卌 |||	8	0.095	.760
89	卌 |	6	0.109	.654
90	卌 卌	10	0.125	1.250
91	卌	5	0.144	.720
92	卌 ||||	9	0.165	1.485
93	|||	3	0.189	.567
94	|||||	5	0.218	1.090
95	|	1	0.250	.250
96	|	1	0.287	.287
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 105$ $\Sigma P = \frac{5.649}{8.153}$ (1

$$\frac{\Sigma P}{\Sigma n} = \frac{5.649}{105} = \frac{.0538}{.0776} \approx 2^{0} = Fm \quad (2)$$

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = Ta$ (3)

$Fm \times Ta = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ = F\acute{m}$ (4)

Equivalent Noise Level <90 dBA ((90)) (5
86.6 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 36

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind
DATA DATE 2/20/81 BY Lee/Dudley
OPERATION RR car tieing
START/STOP TIME
EMPLOYEES RR car tie down people, P17-18
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE ≈ 60 sec SAMPLE RATE NA

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Everywhere less than 79		0.165	
93			0.189	
94			0.218	
95	See tape.		0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (1)

$\frac{\sum P}{\sum n} =$ ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5)

____ dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 37

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind
DATA DATE 4/2/80 BY Lee
OPERATION Rough dry lumber shed
START/STOP TIME
EMPLOYEES
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Everywhere less than 79.		0.189	
94	See tape		0.218	
95			0.250	
96			0.287	
97	Typical of outside		0.330	
98	shed (prior to Energex		0.379	
99	hog as this survey is)		0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ _____ $\sum P =$ _____ (1

$\frac{\sum P}{\sum n} =$ _____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ _____ $=$ Ta (3)

Fm x Ta = _____ x _____ = _____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
_____ dBA ((85))
_____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 38

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/20 & 2/29/81 BY Lee/Dudley & Lau
OPERATION Short block stack @ round table
START/STOP TIME
EMPLOYEES OP. P19
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 50 + 65 115 sec
SAMPLE RATE 1.67 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	𝍸	5 5	0.165	.825
93	|||	3 3	0.189	.567
94	𝍸|||||	10 10	0.218	2.180
95	𝍸|| 𝍸|||	7 8 15	0.250	3.750
96	𝍸| 𝍸𝍸|||	6 13 19	0.287	5.453
97	𝍸𝍸||||	14 14	0.330	4.620
98	|||||	5 5	0.379	1.895
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n =$ 71 $\Sigma P =$ 19.290 (1

$\frac{\Sigma P}{\Sigma n} = \frac{19.290}{71} = .2717 =$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ =$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 95.6 dBA ((90)) (5
95.6 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 39

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/20/81 BY Lee/Dudley
OPERATION P/U @ PLAN. MILL TRIM SAW
START/STOP TIME
EMPLOYEES P/G, RD. TABLE MAN
DAILY HOURS EXPOSED
NOTES 2x4x18 MAT'L
TOTAL SAMPLE 41.7 sec
SAMPLE RATE 1.67 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94	IIII	4	0.218	.872
95	𝍸 𝍸 I	11	0.250	2.750
96	𝍸	5	0.287	1.435
97	𝍸	5	0.330	1.65
98	I	1	0.379	.379
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 26$ $\Sigma P = 7.086$ (1

$\frac{\Sigma P}{\Sigma n} = \frac{7.086}{26} = .2725 = F_m$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = T_a$ (3)

$F_m \times T_a = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ = F_m'$ (4) $\longrightarrow$

Equivalent Noise Level 95.6 dBA ((90)) (5
95.6 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 41

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION IDLE @ ROUNDTABLE | CLEAN-UP
EMPLOYEES
NOTES

DATA DATE 2/29/81 BY G. Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 29,2 sec SAMPLE RATE .833 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	||||	4	0.	0.
85	|||	3	0.062	.186
86	||	2	0.072	.144
87	|||	3	0.082	.246
88	𝍸	5	0.095	.475
89	𝍸 |||	8	0.109	.872
90	𝍸	5	0.125	.625
91	𝍸	5	0.144	.720
92			0.165	
93	|	1	0.189	.189
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 36$

$\Sigma P = \frac{1.534}{3.457}$ (1

$\frac{\Sigma P}{\Sigma n} = \frac{1.534}{36} = \frac{.0426 \nearrow 0}{.0960} =$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\quad}{8} = \underline{\quad} =$ Ta (3)

Fm x Ta = ______ x ______ = ______ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5

88.1 dBA ((85))

______ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 42

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Indus.
DATA DATE 2/20/81 BY Lee / Dudley
OPERATION Planer Mill sup. office
START/STOP TIME
EMPLOYEES Buddy Love's office @ trailer
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 30 sec.
SAMPLE RATE NA

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Everywhere less than 82.		0.165	
93			0.189	
94	See tape.		0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ______ $\sum P =$ ______ (1

$\frac{\sum P}{\sum n} =$ ______ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ______ = Ta (3)

Fm x Ta = ______ x ______ = ______ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 43

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION Outside dry kilns (in op.) at
EMPLOYEES outfeed end
NOTES

DATA DATE 2/20/80 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 13 sec SAMPLE RATE NA

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Everywhere less than 81		0.165	
93			0.189	
94			0.218	
95	See tape.		0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = ____ $\sum P$ = ____ (1

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 44

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/20/80 BY Lee / Dudley
OPERATION at work table near trailer, mill going
START/STOP TIME
EMPLOYEES P24, planer mill maint. man
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 51.7 sec
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94	||	2	0.218	.436
95	𝍸||	7	0.250	1.750
96	𝍸𝍸𝍸𝍸𝍸||	27	0.287	7.749
97	𝍸𝍸𝍸||||	19	0.330	6.270
98	𝍸||	7	0.379	2.653
99			0.435	
100	|	1	0.500	.500
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 63 ΣP = 19.358 (1

$\frac{\Sigma P}{\Sigma n} = \frac{19.358}{63} = .3073$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_$ = Ta (3)

Fm x Ta = ___ x ___ = ___ = Fḿ (4)

Equivalent Noise Level 96.5 dBA ((90)) (5
96.5 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 45

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION P/U sticks at conveyor dump in
EMPLOYEES stick man, Pl sm. bldg.
NOTES

DATA DATE 2/20/81 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 37.5 sec SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	30	0.	0.
85	|||	3	0.062	.186 → 0
86	|	1	0.072	~~.072~~ → 0
87	||	2	0.082	~~.164~~ → 0
88	|	1	0.095	~~.095~~ → 0
89	|	1	0.109	.109 → 0
90	|||	3	0.125	.375
91			0.144	
92	|||	3	0.165	.495
93			0.189	
94			0.218	
95			0.250	
96	|	1	0.287	.287
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = 45 $\sum P$ = 1.157 (1
1.783

$\frac{\sum P}{\sum n}$ = $\frac{.1662}{45}$ = $\frac{.0257}{.0396}$ → 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 46

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/28/80 BY Lee
OPERATION CNS Cutting
START/STOP TIME
EMPLOYEES CNS. op. (C6)
DAILY HOURS EXPOSED
NOTES IN BOOTH
TOTAL SAMPLE 105 Sec. SAMPLE RATE 1.67 Sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	𝍸 𝍸 𝍸 𝍷𝍷𝍷𝍷	19	0.	0.
85	𝍸	5	0.062	.31
86	𝍸 𝍷𝍷𝍷𝍷	9	0.072	.648
87	𝍷𝍷𝍷𝍷	4	0.082	.328
88	𝍸 𝍷𝍷	7	0.095	.665
89	𝍷𝍷𝍷𝍷	4	0.109	.436
90	𝍸 𝍸 𝍷	11	0.125	1.375
91	𝍷𝍷𝍷	3	0.144	.432
92			0.165	
93	𝍷𝍷	2	0.189	.378
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 64$ $\Sigma P = \frac{2.185}{4.572}$ (1

$\frac{\Sigma P}{\Sigma n} = \frac{2.185}{64} = \frac{.0341}{.0714} \nearrow^{D} =$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ =$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4) →

Equivalent Noise Level <90 dBA ((90)) (5
86.0 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 47

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
OPERATION CNS edger cutting
EMPLOYEES Op. C7
NOTES .VSA + TRIM SAW ON TOO.

DATA DATE 2-28-80 ① 3-7-80 ② BY Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE ① 175 ② 106.7 sec 281.7 sec (1+2) SAMPLE RATE 0.83 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	ALSO, A LOT OF AIR NOISE NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)		TOTAL OCCURRENCES PER LEVEL n			F	P=nxF	
Less than 85						0.	0.	
85						0.062		
86						0.072		
87						0.082		
88						0.095		
89						0.109		
90						0.125		
91						0.144		
92	|	||||	1	4	5	0.165	.165	.66
93	|||	||||	3	4	7	0.189	.567	.756
94	卌 ||	卌 卌 ||||	7	14	21	0.218	1.526	3.052
95	||	卌 |	2	6	8	0.250	.500	1.500
96	卌 卌 ||||	卌 卌 ||	14	12	26	0.287	4.018	3.444
97	卌 |||	卌 卌 卌 |||	8	18	26	0.330	2.64	5.94
98	卌 卌	卌 卌 卌 卌 |	10	21	31	0.379	3.790	7.959
99	卌 ||||	卌 卌 |||	9	13	22	0.435	3.915	5.655
100	卌 卌 卌	卌 卌 卌 卌 |||	15	23	38	0.500	7.500	11.5
101	卌 |||	卌 卌 ||||	8	14	22	0.574	4.592	8.036
102	卌 |	卌 卌 卌 卌 卌 卌	6	30	36	0.660	3.96	19.8
103	卌 卌 卌 ||	卌 卌 卌 卌	17	20	37	0.758	12.886	15.16
104	卌 卌 卌 |	卌 卌 卌 卌 ||	16	22	38	0.871	13.936	19.162
105	卌 ||	卌 |	07	6	13	1.000	7.000	6.000
106	|	||||	1	4	5	1.149	1.149	4.596
107	||		2		2	1.320	2.64	
108	|		1		1	1.516	1.516	
109	|		1		1	1.741	1.741	
110	|		1		1	2.000	2.000	
111						2.297		
112						2.639	①	②
113	①	②				3.031		
114			①	②	TOT.	3.482		
115	Repeatability check					4.000		

$\frac{113.22}{211} = .5366$ ②

$\Sigma n = 340$

$\Sigma P =$ ① 76.041 (1
② 113.22

$\frac{\Sigma P}{\Sigma n} = \frac{76.041}{127} = .5895 = Fm$ (2) ①

FOR TOTAL ①+② $= \frac{189.261}{340} = .55665$

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ = Ta$ (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

TOTAL { 100.8
100.8

Equivalent Noise Level
① { 101.2 dBA ((90)) (5
101.2 dBA ((85))
② { 100.5 dBA
100.5 dBA

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}$.

B34

TASK NO. 48

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
DATA DATE 4/1/80 BY Lee
OPERATION ALL MILL GOING - CUTTING
START/STOP TIME
EMPLOYEES Op. CB, TRIM SAW OPERATOR
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 68.3 sec SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97	|	1	0.330	.330
98	|||	3	0.379	1.137
99	𝍸 ||	7	0.435	3.045
100	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	45	0.500	22.500
101	𝍸 𝍸 𝍸 |	16	0.574	9.184
102	𝍸 𝍸 |	11	0.660	7.260
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n = 83$ $\sum P = 43.456$ (1

$\frac{\sum P}{\sum n} = \frac{43.456}{83} = .5236 = Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = Ta$ (3)

$Fm \times Ta = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ = Fm'$ (4)

Equivalent Noise Level 100.3 dBA ((90)) (5

100.3 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B40

TASK NO. 49

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 4-1-80 BY Lee
OPERATION ALL MILL GOING – CUTTING
START/STOP TIME
EMPLOYEES op. C9, TRIM SAW op. HELPER
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE
SAMPLE RATE 1.67 sec

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96	|	1	0.287	.287
97	卌||||	9	0.330	2.970
98	卌卌卌	15	0.379	5.685
99	卌卌卌卌||||	24	0.435	10.44
100	卌卌|	11	0.500	5.50
101	卌	5	0.574	2.87
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Existing Regulation Cutoff

Σn = 65 ΣP = 27.752 (1

$\frac{\Sigma P}{\Sigma n} = \frac{27.752}{65} = .4270$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 98.9 dBA ((90)) (5
98.9 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}$.

B41

TASK NO. 50

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.

DATA DATE 2-28-80 BY Lee

OPERATION IDLE

START/STOP TIME

EMPLOYEES CNS Op. C6

DAILY HOURS EXPOSED

NOTES IN BOOTH

TOTAL SAMPLE

SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Everywhere less than 81		0.165	
93			0.189	
94	Generally less than 74.		0.218	
95			0.250	
96			0.287	
97	See tape.		0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n =$ ____ $\Sigma P =$ ____ (1

$\frac{\Sigma P}{\Sigma n} =$ ____ $=$ 0 $= Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $= Ta$ (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5

<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 51

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION Cleanup + idle
EMPLOYEES CNS Mill, Edger Op. C1
NOTES

DATA DATE 2-28-80 BY Lee
START/STOP TIME
DAILY HOURS EXPOSED
110 + 130 + 155 + 65
TOTAL SAMPLE 460 sec SAMPLE RATE 5 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90	||	2	0.125	.250
91	卌 |	6	0.144	.864
92	卌 卌 |	11	0.165	1.815
93	卌 ||||	9	0.189	1.701
94	卌 卌 卌 |||	18	0.218	3.924
95	卌 卌 卌	15	0.250	3.750
96	卌 卌 卌 卌 |||	23	0.287	6.601
97	卌 |	6	0.330	1.98
98	卌	5	0.379	1.895
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103	|	1	0.758	.758
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = 96 $\sum P$ = 23.538 (

$\frac{\sum P}{\sum n}$ = $\frac{23.538}{96}$ = .2452 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\quad}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 94.9 dBA ((90)) (
94.9 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B43

TASK NO. 52

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 4/1/80 BY Lee
OPERATION CNS TS Op. Idle, C8
START/STOP TIME
EMPLOYEES OTHER MACH IDLING-
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Quite Steady level		0.189	
94			0.218	
95	GENERALLY steady on 98.		0.250	
96			0.287	
97			0.330	
98	See tape.		0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = ____ ΣP = ____ (1

$\frac{\Sigma P}{\Sigma n}$ = ____ = .3790 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\quad}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 98.0 dBA ((90)) (5

98.0 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B44

TASK NO. 53

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/28/80 BY Lee
OPERATION CNS TRIM IDLE
START/STOP TIME
EMPLOYEES TRIM. SAW OP. HELPER POS. (C9)
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 43.3 sec SAMPLE RATE 1.67 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97	𝍸|||	8	0.330	2.640
98	𝍸||	7	0.379	2.653
99	𝍸|||	8	0.435	3.480
100	||	2	0.500	1.000
101			0.574	
102	|	1	0.660	.660
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n = 26$ $\sum P = 10.433$ (1

$\frac{\sum P}{\sum n} = \frac{10.433}{26} = .4013 = Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = Ta$ (3)

$Fm \times Ta = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ = F\acute{m}$ (4)

Equivalent Noise Level 98.4 dBA ((90)) (5
98.4 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

845

TASK NO. 54

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/28/80 BY Lee
OPERATION operating
START/STOP TIME
EMPLOYEES Op. C10, #1 Tipple
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 87.5 sec SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88	|	1	0.095	~~.095~~ → 0
89	||	2	0.109	~~.210~~ → 0
90	𝍸 |||||	10	0.125	1.250
91	𝍸 | |	7	0.144	1.008
92	𝍸 ||||	9	0.165	1.485
93	𝍸 𝍸 ||	12	0.189	2.268
94	𝍸 |||	8	0.218	1.744
95	𝍸 |||	8	0.250	2.000
96	𝍸 |||	8	0.287	2.296
97	𝍸 ||	7	0.330	2.31
98	𝍸 |	6	0.379	2.274
99	||||	4	0.435	1.74
100	𝍸 𝍸	10	0.500	5.00
101	|	1	0.574	.574
102	𝍸 |	6	0.660	3.96
103	|||	3	0.758	2.274
104	|||	3	0.871	2.613
105			1.000	
106			1.149	
107	|	1	1.320	1.320
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 106 ΣP = 34.116 (1
34.421

$\frac{\Sigma P}{\Sigma n} = \frac{34.116}{106} = \frac{.3218}{.3247}$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 96.8 dBA ((90)) (5
96.9 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B46

TASK NO. 55

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
DATA DATE 2-28-80 BY Lee
OPERATION #2 Tipple controller working
START/STOP TIME
EMPLOYEES C11 & helper
DAILY HOURS EXPOSED
NOTES 1 man there at data date
TOTAL SAMPLE 95 sec
SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87	|	1	0.082	~~.082~~ → 0
88	|||||||||	9	0.095	~~.855~~ → 0
89	|||||||	7	0.109	~~.763~~ → 0
90	||||||||||||	12	0.125	1.500
91	||||||||||	10	0.144	1.440
92	||||||||||||||||||||||	22	0.165	3.630
93	|||||||||||||||||	17	0.189	3.213
94	|||||||||||||||||	17	0.218	3.706
95	|||||||	7	0.250	1.750
96	||||||||||	10	0.287	2.870
97			0.330	
98	|||	3	0.379	1.137
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = 115

$\sum P$ = 19.246 / 20.946 (1

$\frac{\sum P}{\sum n} = \frac{19.246}{115} = \frac{.1674}{.1821}$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

$\xrightarrow{}$ Equivalent Noise Level 92.1 dBA ((90)) (5

92.7 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 56

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 4/1/80
BY Lee
OPERATION IDLE
START/STOP TIME
EMPLOYEES BAND MILL EDGER HELPER POS.
DAILY HOURS EXPOSED
NOTES (B2-3) also operator
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Everywhere less than 92		0.189	
94			0.218	
95	See tape.		0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____

$\frac{\sum P}{\sum n} =$ ____ $=$ .165 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 92.0 dBA ((90))
92.0 dBA ((85))

$L = 16.61 \log (16F) + 85. \quad F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 58

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION #2 Tipple op. & helpers, C1
EMPLOYEES idle
NOTES

DATA DATE 2/28/80 & 4/2/80 BY Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Everywhere less than 85,		0.189	
94			0.218	
95	Generally less than 84.		0.250	
96			0.287	
97	See tape		0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n =$ ____ $\Sigma P =$ ____ (1

$\frac{\Sigma P}{\Sigma n} =$ ____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (

<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 59

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/28/80 & 4-2-80
BY G. Lee
OPERATION No. 1 tipple operator pos.
START/STOP TIME
EMPLOYEES
DAILY HOURS EXPOSED
NOTES CNS mill idle (not running to unjam cont conveyor)
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Everywhere less than 87.		0.189	
94			0.218	
95	Generally about 85.		0.250	
96			0.287	
97	See tape.		0.330	
98			0.379	
99	(Tape on Task 54 shows		0.435	
100			0.500	
101	high 80's for idle)		0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (1)

$\frac{\sum P}{\sum n} =$ ____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level < 90 dBA ((90)) (5)
____ dBA ((85))
____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 60

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 9/18/81 BY G. Lee
OPERATION Sorting at FIRST POS., C14
START/STOP TIME
EMPLOYEES GREEN CHAIN ON GROUND
DAILY HOURS EXPOSED
NOTES BM + CNS Mill TS's going/cutting
TOTAL SAMPLE $56\frac{2}{3}$ sec SAMPLE RATE $1\frac{2}{3}$ sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91	||||	4	0.144	.576
92	𝍸 |	6	0.165	.990
93	𝍸 |	6	0.189	1.134
94	𝍸 𝍸	10	0.218	2.180
95	|||	3	0.250	.750
96	|||	3	0.287	.861
97	|	1	0.330	.330
98	|	1	0.379	.379
99			0.435	
100	|	1	0.500	.500
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 35$ $\Sigma P = 7.700$

$\frac{\Sigma P}{\Sigma n} = \frac{7.700}{35} = .220 = Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ = Ta$ (3)

$Fm \times Ta = \_\_\_ \times \_\_\_ = \_\_\_ = Fm'$ (4)

Equivalent Noise Level 94.1 dBA ((90))
94.1 dBA ((85))
___ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 61

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION In millwright area - running
EMPLOYEES P6 (planer technician)
NOTES 2x4x20's running

DATA DATE 2/29/80 BY Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 73.3 sec. SAMPLE RATE .83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90	|||	3	0.125	.375
91	卌 ||||	9	0.144	1.296
92	卌 卌 卌 卌 |||	23	0.165	3.795
93	卌 卌 卌 |||||	20	0.189	3.780
94	卌 卌 卌 卌 |	21	0.218	4.578
95	|||||	5	0.250	1.250
96	卌 ||	7	0.287	2.009
97			0.330	
98			0.379	
99	|	1	0.435	.435
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 89 ΣP = 17.518 (1

$\frac{\Sigma P}{\Sigma n}$ = $\frac{17.518}{89}$ = .1968 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\quad}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 93.3 dBA ((90)) (5

93.3 dBA ((85))

L = 16.61 log (16F) + 85. F = 1/T_p = $(1/16)2^{[(L-85)/5]}$.

TASK NO. 62

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION running
EMPLOYEES 51, stacker operator
NOTES

DATA DATE 2/20/80 BY Lee / Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 75 sec. SAMPLE RATE 0.83 pe

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85	||	2	0.062	.124
86	卌卌|	11	0.072	.792
87	卌卌||||	14	0.082	1.148
88	卌卌卌|	16	0.095	1.52
89	卌卌|	11	0.109	1.199
90	卌卌卌卌	20	0.125	2.50
91	卌	5	0.144	.72
92	||||	4	0.165	.66
93			0.189	
94	卌	5	0.218	1.090
95	|	1	0.250	.250
96	||	2	0.287	.574
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n = 91$ $\sum P = \frac{5.794}{10.577}$ (

$\frac{\sum P}{\sum n} = \frac{5.794}{91} = \frac{.0637}{.1162} = Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = Ta$ (3)

Fm x Ta = _____ x _____ = _____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (
89.5 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 63

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION idle
EMPLOYEES S1, Stacker Up; + S2 Transfer man
NOTES

DATA
DATE 2/20 & 4/2/80 BY Lee / Dudley + Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Everywhere less than 96.		0.189	
94			0.218	
95			0.250	
96	Generally less than 83, usually in 70's		0.287	
97			0.330	
98			0.379	
99	See tapes.		0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n =$ ____ $\Sigma P =$ ____ (

$\frac{\Sigma P}{\Sigma n} =$ ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 64

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION TRANSER OPERATOR WORKING
EMPLOYEES Operator S2
NOTES

DATA DATE 2/20 + 4/2/80 BY Lee/Dudley + Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 60 sec. SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	𝍸𝍸𝍸	15	0.	0.
85	𝍸	05	0.062	.31
86	𝍸𝍷𝍷𝍷𝍷	9	0.072	.648
87	𝍸𝍷	6	0.082	.492
88	𝍸𝍸	10	0.095	.950
89	𝍸𝍷𝍷	7	0.109	.763
90	𝍷𝍷𝍷𝍷	4	0.125	.500
91	𝍷𝍷	2	0.144	.288
92	𝍸𝍷	6	0.165	.99
93	𝍷𝍷𝍷	3	0.189	.567
94	𝍷𝍷	2	0.218	.436
95			0.250	
96	𝍷𝍷𝍷𝍷	4	0.287	1.148
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n = 73$ $\sum P = 3.929$ (1
7.092

$\frac{\sum P}{\sum n} = \frac{3.929}{73} = \frac{.0538}{.0972}$ = Fḿ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
88.2 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}$.

TASK NO. 65

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind
DATA DATE 9/18/81 BY G. Lee
OPERATION Bonder, C/2, Working @ position
START/STOP TIME
EMPLOYEES
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Everywhere less than 92 (due to		0.189	
94			0.218	
95	a slap).		0.250	
96			0.287	
97			0.330	
98	Generally less than 86		0.379	
99			0.435	
100			0.500	
101	Less than 90.		0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (1)

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5)
____ dBA ((85))
____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 66

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
DATA DATE 8/22/80 BY G. Lee
OPERATION Planer Mill Chip Truck Load Area
START/STOP TIME
EMPLOYEES
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 51 sec SAMPLE RATE 1 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86	|	1	0.072	.072
87	|	1	0.082	.082
88			0.095	
89	||	2	0.109	.218
90	||||	4	0.125	.500
91	卌 卌 卌	15	0.144	2.160
92	卌 卌 卌 卌	20	0.165	3.300
93	卌 |||	8	0.189	1.512
94	|	1	0.218	.218
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 52 ΣP = 7.69 (1
8.062

$\frac{\Sigma P}{\Sigma n} = \frac{7.69}{52} = \frac{.14788}{.1550}$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 91.2 dBA ((90)) (5
91.6 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 67

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION running/working
EMPLOYEES Stick layers, S3
NOTES

DATA DATE 2-20-80 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 51.7 sec SAMPLE RATE 0.82 s/c

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	𝍸 𝍸 𝍸 𝍸 𝍸 𝍷	26	0.	0.
85	𝍸 𝍷𝍷	7	0.062	.434
86	𝍸 𝍷𝍷𝍷	8	0.072	.576
87	𝍷𝍷𝍷𝍷	4	0.082	.328
88	𝍷𝍷	2	0.095	.190
89	𝍷	1	0.109	.109
90	𝍷𝍷𝍷𝍷	4	0.125	.500
91	𝍷𝍷𝍷𝍷	4	0.144	.576
92	𝍷𝍷𝍷	3	0.165	.495
93			0.189	
94	𝍷𝍷𝍷𝍷	4	0.218	.872
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = 63 $\sum P$ = 2.443 (1
4.08

$$\frac{\sum P}{\sum n} = \frac{2.443}{63} = \frac{.0388}{.0648} = \text{Fm (2)}$$

$$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = \text{Ta (3)}$$

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5
85.3 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 68

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 2/20/80
BY Lee/Dudley
OPERATION STICK LAYERS "IDLE"
START/STOP TIME
EMPLOYEES 53 operators
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE 58.33 sec
SAMPLE RATE 0.83 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	𝍸𝍸𝍸𝍸𝍸𝍸𝍸𝍸𝍸𝍸𝍸𝍸𝍷	61	0.	0.
85	𝍷	1	0.062	.062
86	𝍷𝍷	2	0.072	.144
87			0.082	
88			0.095	
89	𝍷	1	0.109	.109
90	𝍷	1	0.125	.125
91	𝍷	1	0.144	.144
92	𝍷	1	0.165	.165
93			0.189	
94	𝍷	1	0.218	.218
95			0.250	
96	𝍷	1	0.287	.287
97			0.330	
98			0.379	
99			0.435	
100	𝍷	1	0.500	.500
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 71

ΣP = 1.439 (
1.754

$\frac{\Sigma P}{\Sigma n} = \frac{1.439}{71} = \frac{.0203}{.0247}$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_$ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (
<85 dBA ((85))

$L = 16.61 \log (16F) + 85. \quad F = 1/T_p = (1/16) 2^{\left[(L-85)/5\right]}.$

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TASK NO. 69

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION Normal oper. of C4 Op,
EMPLOYEES No. 1 Kickout, cycle
NOTES

DATA DATE 2/20 & 4/2/80 BY Lee/Dudley & Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 230 Sec. SAMPLE RATE $1\frac{2}{3}$ sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86	卌	5	0.072	.36
87	卌 卌 卌 卌 卌 ||	27	0.082	2.214
88	卌 卌 卌 卌 |	21	0.095	1.995
89	卌 ||	7	0.109	.763
90	卌 卌 卌	15	0.125	1.875
91	卌 ||	7	0.144	1.008
92	卌 |	6	0.165	.990
93	||||	4	0.189	.756
94	卌 ||||	9	0.218	1.962
95	卌 |	6	0.250	1.500
96	卌 |||	8	0.287	2.296
97	卌 卌	10	0.330	3.300
98	|||	3	0.379	1.137
99	|	1	0.435	.435
100	||||	4	0.500	2.000
101	|||	3	0.574	1.722
102	||	2	0.660	1320
103			0.758	
104	|	1	0.871	.871
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 139$ $\Sigma P = \frac{21.172}{26.504}$ (

$$\frac{\Sigma P}{\Sigma n} = \frac{21.172}{139} = \frac{.1523}{.19068} = \text{Fm (2)}$$

$$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \frac{\_\_\_\_}{\_\_\_\_} = \text{Ta (3)}$$

$\text{Fm} \times \text{Ta} = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ = \text{Fm}'$ (4)

Equivalent Noise Level 91.4 dBA ((90)) (
93.0 dBA ((85))

$L = 16.61 \log(16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

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TASK NO. 70

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.

OPERATION Idle at work station

EMPLOYEES C3, No.1 Slasher

NOTES

DATA DATE 2/20/80 BY Lee/Dudley

START/STOP TIME

DAILY HOURS EXPOSED

TOTAL SAMPLE ≃60 Sec. SAMPLE RATE NA

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94	Everywhere less than 86.		0.218	
95	(Talk took to 86)		0.250	
96			0.287	
97	Generally less than 77.		0.330	
98			0.379	
99			0.435	
100	See tape.		0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (

$\frac{\sum P}{\sum n} =$ ____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (

<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 71

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION OPERATING - IN BOOTH
EMPLOYEES No. 1 Slasher, C3
NOTES

DATA DATE 2/20/80 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE ≈ 63 sec SAMPLE RATE NA

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95	Everywhere less than 82		0.250	
96			0.287	
97	Generally less than 80.		0.330	
98			0.379	
99	See tape.		0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90))
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 72

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION No. 2 Slasher. operating
EMPLOYEES Op. C5
NOTES

DATA DATE 2/20/80 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 85 sec. SAMPLE RATE 2.5 sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	𝍸 𝍸 𝍸 𝍸	20	0.	0.
85	𝍸	5	0.062	.31
86	𝍸	5	0.072	.36
87	|||	3	0.082	.246
88	|	1	0.095	.095
89	|	1	0.109	.109
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = 35 $\sum P$ = $\frac{0}{1.12}$ (

$$\frac{\sum P}{\sum n} = \frac{0}{35} = \frac{0}{.032} = Fm\ (2)$$

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = Ta\ (3)$

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (
<85 dBA ((85))

$$L = 16.61 \log (16F) + 85. \qquad F = 1/T_p = (1/16)2^{[(L-85)/5]}.$$

TASK NO. 73

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION idle in booth
EMPLOYEES C5 No 2 slasher
NOTES

DATA DATE 2/20/80 BY Lee/Dudley
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE ≈ 40 sec. SAMPLE RATE NA

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Everywhere less than 86		0.165	
93			0.189	
94			0.218	
95	Generally less than 84		0.250	
96			0.287	
97			0.330	
98	See tape.		0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (

$\frac{\sum P}{\sum n} =$ ____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 74

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION Kiln Control Room
EMPLOYEES Ed Hents
NOTES

DATA DATE 4/2/80 BY Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94	Everywhere less than 92.		0.218	
95			0.250	
96	Chair/desk less than 85.		0.287	
97			0.330	
98	See Tape.		0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (

$\frac{\sum P}{\sum n} =$ ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (
____ dBA ((85))
____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B65

TASK NO. 75

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries

DATA DATE 9/18/81 BY G. Lee

OPERATION Log Line, Near CNS, all going

START/STOP TIME

EMPLOYEES Hester

DAILY HOURS EXPOSED

NOTES

TOTAL SAMPLE 60 sec SAMPLE RATE 1 2/3 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	ǀǀǀǀ	4	0.189	.756
94	𝍸ǀǀ	7	0.218	1.526
95	𝍸	5	0.250	1.250
96	𝍸ǀ	6	0.287	1.722
97	ǀǀǀǀ	4	0.330	1.320
98	ǀǀǀǀ	4	0.379	1.516
99	ǀǀǀ	3	0.435	1.305
100			0.500	
101	ǀ	1	0.574	.574
102	ǀ	1	0.660	.660
103	ǀ	1	0.758	.758
104			0.871	
105			1.000	
106	ǀ	1	1.149	1.149
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 37 ΣP = 12.536

$\frac{\Sigma P}{\Sigma n} = \frac{12.536}{37} = .3388$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_$ = Ta (3)

Fm x Ta = ___ x ___ = ___ = Fḿ (4)

Equivalent Noise Level 97.2 dBA ((90))

97.2 dBA ((85))

___ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B66

TASK NO. 76

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
DATA DATE 4/2/80 BY Lee
OPERATION C16 - lift truck cycle
START/STOP TIME
EMPLOYEES green chain to stacker bldg.
DAILY HOURS EXPOSED
NOTES Mr. Flap
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	~~Everywhere less than 102.~~		0.165	
93			0.189	
94	Generally less than 86.		0.218	
95			0.250	
96	See tape		0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = ____ $\sum P$ = ____

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90))

____ dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B67

TASK NO. 77

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
DATA DATE 4/2/80 BY Lee
OPERATION JIB CRANE OP. C1
START/STOP TIME
EMPLOYEES WORKING
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97	Generally less than 84		0.330	
98			0.379	
99	See tape.		0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (
<85 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B6B

TASK NO. 78

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 4-1-80 BY Lee
OPERATION
START/STOP TIME
EMPLOYEES Band Mill Edger Op. B3
DAILY HOURS EXPOSED
285 + 63.3 =
NOTES — Operating & Helper
TOTAL SAMPLE 348.3 Sec. SAMPLE RATE 1.66 Sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90		5	0.125	.625
91		18	0.144	2.592
92		57	0.165	9.405
93		33	0.189	6.237
94		27	0.218	5.886
95		16	0.250	4.000
96		14	0.287	4.018
97		7	0.330	2.310
98		7	0.379	2.653
99			0.435	
100		6	0.500	3.000
101		2	0.574	1.148
102		8	0.660	5.280
103		2	0.758	1.516
104		6	0.871	5.226
105		1	1.000	1.000
106		1	1.149	1.149
107			1.320	
108		1	1.516	1.516
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 211$ $\Sigma P = 57.561$ (

$\frac{\Sigma P}{\Sigma n} = \frac{57.561}{211} = .2728 =$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ =$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 95.6 dBA ((90)) (
95.6 dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 79

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.

OPERATION Cutting/Working

EMPLOYEES B1, Heading Operator

NOTES

DATA DATE 4-1-80 BY Lee

START/STOP TIME

DAILY HOURS EXPOSED

TOTAL SAMPLE

SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Generally ≤ 90.		0.165	
93			0.189	
94	See tape.		0.218	
95			0.250	
96			0.287	
97	Conservatively should be 90.		0.330	
98			0.379	
99			0.435	
100	(Observation notes of 10/18/79		0.500	
101			0.574	
102	indicate cutting peaks @ 89.5-90 dBA)		0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ______ $\sum P =$ ______

$\frac{\sum P}{\sum n} =$ ______ $=$ .125 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ______ $=$ Ta (3)

Fm x Ta = ______ x ______ = ______ = Fḿ (4)

Equivalent Noise Level 90 dBA ((90))

______ dBA ((85))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B70

TASK NO. 80

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind
DATA DATE 9/18/81 BY G. Lee
OPERATION
START/STOP TIME
EMPLOYEES B1, Heading oper, Idle in booth
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Less than 90.		0.165	
93			0.189	
94			0.218	
95	Varies with worker, whether		0.250	
96			0.287	
97	or not he shuts door,		0.330	
98			0.379	
99	window etc.		0.435	
100			0.500	
101	Notes of 10/18/80 indicate		0.574	
102			0.660	
103	86-88, primarily 87.		0.758	
104			0.871	
105	Tape of 9/18/81 shows levels		1.000	
106			1.149	
107	everywhere less than 84.		1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = ____ $\sum P$ = ____ (1)

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\quad}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5)

____ dBA ((85))

____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 81

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind

OPERATION Main office level

EMPLOYEES

NOTES

DATA DATE 9/18/81 BY G. Lee

START/STOP TIME

DAILY HOURS EXPOSED

TOTAL SAMPLE

SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99	Everywhere less than 56		0.435	
100			0.500	
101	See Tape		0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____

$\frac{\sum P}{\sum n} =$ ____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <<90 dBA ((90))

<<85 dBA ((85))

<<80 dBA ((80))

$L = 16.61 \log (16F) + 85. \quad F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B72

TASK NO. 82

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 9/18/01 BY G. Lee
OPERATION Sorting at 2nd position.
START/STOP TIME
EMPLOYEES GREEN CHAIN ON GROUND
DAILY HOURS EXPOSED
NOTES BM + CNS Mill TSS going
TOTAL SAMPLE 66 2/3 sec SAMPLE RATE 1 2/3 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85	𝍸	5	0.062	.31
86	𝍸	5	0.072	.36
87	𝍸 ||||	9	0.082	.738
88	𝍸 ||||	9	0.095	.855
89	||||	4	0.109	.436
90	𝍸	5	0.125	.625
91	||	2	0.144	.288
92	|	1	0.165	.165
93			0.189	
94	|	1	0.218	.218
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 41$ $\Sigma P = \frac{1.296}{3.995}$

$\frac{\Sigma P}{\Sigma n} = \frac{1.296}{41} = \frac{.0316}{.0974} \nearrow 0 = Fm\ (2)$ → Equivalent Noise Level

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \frac{\_\_\_\_}{\_\_\_\_} = Ta\ (3)$

Fm x Ta = _____ x _____ = _____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90))
88.2 dBA ((85))
_____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 89

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 11-5-80 BY Lee
OPERATION Heading/BM infeed lift truck op.
START/STOP TIME
EMPLOYEES Willie Moye
DAILY HOURS EXPOSED
NOTES riding on lift as driver makes rounds
TOTAL SAMPLE 385 sec = 6m25s SAMPLE RATE 5 sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85	𝍸𝍸||	12	0.	0.
85	||	2	0.062	.124
86	|||	3	0.072	.216
87	|||	3	0.082	.246
88	||||	4	0.095	.380
89	|||||	5	0.109	.545
90	𝍸𝍸𝍸||||	19	0.125	2.375
91	𝍸𝍸	10	0.144	1.440
92	𝍸||||	9	0.165	1.485
93	||||	4	0.189	.756
94	||||	4	0.218	.872
95	||	2	0.250	.500
96			0.287	
97	|	1	0.330	.330
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 78

ΣP = 7.758 / 9.269 (

$\frac{\Sigma P}{\Sigma n} = \frac{7.758}{78} = \frac{.09946}{.11883} \overset{\nearrow 0}{}$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ =$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4) → Equivalent Noise Level L90 dBA ((90)) (

89.6 dBA ((85))

$L = 16.61 \log(16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B74

TASK NO. 90

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION Tally man - operating
EMPLOYEES
NOTES BM & CNS Mill going with lumber

DATA DATE 9/18/81 BY G. Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 53.3 sec SAMPLE RATE $1\frac{2}{3}$ sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	|	1	0.165	.165
93	|||	3	0.189	.567
94	|||||	5	0.218	1.090
95	||||	4	0.250	1.000
96	~~||||~~|	6	0.287	1.722
97	|||||	5	0.330	1.650
98	||	2	0.379	.758
99	|||	3	0.435	1.305
100	|	1	0.500	.500
101			0.574	
102	||	2	0.660	1.320
103	|	1	0.758	.758
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 33

ΣP = 10.835

$$\frac{\Sigma P}{\Sigma n} = \frac{10.835}{33} = .3283 = Fm\ (2)$$

$$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ = Ta\ (3)$$

$Fm \times Ta$ = ____ x ____ = ____ = $F\acute{m}$ (4)

Equivalent Noise Level 97.0 dBA ((90))

97.0 dBA ((85))

____ dBA ((80))

$$L = 16.61 \log (16F) + 85. \quad F = 1/T_p = (1/16)2^{[(L-85)/5]}.$$

TASK NO. 91

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.

OPERATION PLT. SUPERINTENDENT'S OFFICE

EMPLOYEES

NOTES

DATA DATE 2/20/81 BY G. Lee

START/STOP TIME

DAILY HOURS EXPOSED

TOTAL SAMPLE SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Less than 80 dBA		0.189	
94			0.218	
95	see tape.		0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ______ $\sum P =$ ______ (1)

$\frac{\sum P}{\sum n}$ = ______ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8}$ = ______ = Ta (3)

Fm x Ta = ______ x ______ = ______ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5)

<85 dBA ((85))

<80 dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16) 2^{[(L-85)/5]}.$

B76

TASK NO. 92

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION CNS Mill Supervisor's Office
EMPLOYEES
NOTES
DATA DATE 2/28/80 BY G. Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Everywhere less than 85.		0.165	
93			0.189	
94	See tape.		0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (1)

$\frac{\sum P}{\sum n} =$ ____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5)

<85 dBA ((85))

____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

B77

TASK NO. 93

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries DATA DATE 8/22/80 BY G. Lee
OPERATION Chip Truck loader working etc. START/STOP TIME
EMPLOYEES DAILY HOURS EXPOSED
NOTES Behind RR car TOTAL SAMPLE SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Everywhere		0.189	
94			0.218	
95	Less than 81 dBA.		0.250	
96			0.287	
97	See tape		0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (1)

$\frac{\sum P}{\sum n} =$ ____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5)

<85 dBA ((85))

____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 94

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 4/2/80 BY G. Lee
OPERATION Green Sorter attendant
START/STOP TIME
EMPLOYEES -
DAILY HOURS EXPOSED
NOTES Sample at stations from sorter #2 tipple to banding area
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92	Levels varied up to 104 due to		0.165	
93	board slaps.		0.189	
94			0.218	
95			0.250	
96	Generally, levels were less than		0.287	
97	92 however, with equivalent		0.330	
98	level in high 80's on end		0.379	
99	of auto sorter nearest CNS mill		0.435	
100			0.500	
101	to low 80's/high 70's on end		0.574	
102			0.660	
103	of auto sorter nearest stacker bldg.		0.758	
104			0.871	
105			1.000	
106	See tape.		1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n =$ ____ $\sum P =$ ____ (1)

$\frac{\sum P}{\sum n} =$ ____ $=$ 0 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\text{\_\_\_\_}}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90)) (5)

____ dBA ((85))

____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 96

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Cont. Forest Industries
OPERATION Band Mill TS operating
EMPLOYEES B4
NOTES Cutting

DATA DATE 9/10/81 BY G. Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 70 sec SAMPLE RATE $1\frac{2}{3}$ sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98	卌|	6	0.379	2.274
99	卌	5	0.435	2.175
100	卌卌|	11	0.500	5.500
101	卌卌|||	13	0.574	7.462
102	卌	5	0.660	3.300
103	||	2	0.758	1.516
104	|	1	0.871	.871
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Σn = 43 ΣP = 23.098

$\frac{\Sigma P}{\Sigma n} = \frac{23.098}{43} =$ .5372 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ =$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 100.5 dBA ((90))

100.5 dBA ((85))

____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

BBC

TASK NO. 9

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
DATA DATE 9/18/81 BY G. Lee
OPERATION Band Mill Twin Saw Op.
START/STOP TIME
EMPLOYEES
DAILY HOURS EXPOSED
NOTES Idle
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94	Steady level.		0.218	
95			0.250	
96	Use 98 dBA.		0.287	
97			0.330	
98	See tape.		0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n =$ ____ $\Sigma P =$ ____

$\frac{\Sigma P}{\Sigma n} =$ ____ $=$ .379 $=$ Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\quad}{8} =$ ____ $=$ Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level 98 dBA ((90))

98 dBA ((85))

98 dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

BRI

TASK NO. 99

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Industries
OPERATION Tally man, Bb, Idle -
EMPLOYEES
NOTES BM now CNS Mill cutting but running

DATA DATE 9/18/81 BY G. Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 43 1/3 sec SAMPLE RATE 1 2/3 se

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89	𝍸 𝍸	10	0.109	1.09
90	𝍸 𝍸 |||	13	0.125	1.625
91	||||	4	0.144	.576
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = 27 $\sum P$ = 2.201

$\frac{\sum P}{\sum n} = \frac{2.201}{27} = \frac{.0815^{0}}{.1219}$ = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \frac{\_\_\_}{\_\_\_}$ = Ta $(3)^{3.291}$

Fm x Ta = _____ x _____ = _____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90))
89.8 dBA ((85))
_____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 10

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION attending chipper (clean-up)
EMPLOYEES Vib. conveyor & clean-up,
NOTES BM

DATA DATE 9/18/81 BY G. Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE $31\frac{2}{3}$ SAMPLE RATE $1\frac{2}{3}$ mi

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104	|	1	0.871	.871
105	𝍸||	7	1.000	7.000
106	𝍸|	6	1.149	6.894
107	|||	3	1.320	3.960
108	|	1	1.516	1.516
109	|	1	1.741	1.741
110	|	1	2.000	2.000
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 20$

$\Sigma P = 23.982$

$\frac{\Sigma P}{\Sigma n} = \frac{23.982}{20} = 1.1991 = Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \_\_\_\_ = Ta$ (3)

$Fm \times Ta = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ = Fm'$ (4)

Equivalent Noise Level 106.3 dBA ((90))
106.3 dBA ((85))
____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

TASK NO. 101

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 9/18/81 BY G. Lee
OPERATION Under BM at start of VIB. CONV
START/STOP TIME
EMPLOYEES VIB. CONVEYOR + CLEAN-UP
DAILY HOURS EXPOSED
NOTES MAN @ BM
TOTAL SAMPLE $28\frac{1}{3}$ sec SAMPLE RATE $1\frac{2}{3}$ sec.

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93			0.189	
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99	|	1	0.435	.435
100	|	1	0.500	.500
101	𝍸|	6	0.574	3.444
102	𝍸||	7	0.660	4.620
103	|||	3	0.758	2.274
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 18$ $\Sigma P = 11.273$

$\frac{\Sigma P}{\Sigma n} = \frac{11.273}{18} = .6263 = Fm$ (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ = Ta$ (3)

$Fm \times Ta = \_\_\_ \times \_\_\_ = \_\_\_ = Fm'$ (4)

Equivalent Noise Level 101.6 dBA ((90))
101.6 dBA ((85))
___ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16) 2^{[(L-85)/5]}.$

B84

TASK NO. 102

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
DATA DATE 9/18/81 BY G. Lee
OPERATION GREEN SORT CHAIN FIRST
START/STOP TIME
EMPLOYEES MAN, IDLE (RM + CNS IDLE
DAILY HOURS EXPOSED
NOTES BUT GOING)
TOTAL SAMPLE 83 1/3 sec SAMPLE RATE 1 2/3 sec

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88	IIII	4	0.095	.38
89	卌 卌 卌 III	18	0.109	1.962
90	卌 卌 卌 II	17	0.125	2.125
91	卌 III	8	0.144	1.152
92	III	3	0.165	.495
93	I	1	0.189	.189
94			0.218	
95			0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\Sigma n = 51$ $\Sigma P = 3.961$ (

6.303

$\frac{\Sigma P}{\Sigma n} = \frac{3.961}{51} = \frac{.0777}{.1236} = Fm\ (2)$ 70

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_\_}{8} = \frac{\_\_\_\_}{\_\_\_\_} = Ta\ (3)$

$Fm \times Ta = \_\_\_\_ \times \_\_\_\_ = \_\_\_\_ = F\acute{m}\ (4)$

Equivalent Noise Level <90 dBA ((90)) (
89.9 dBA ((85))
_____ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

BB5

TASK NO. 103

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind
DATA DATE 9/10/81 BY G. Lee
OPERATION Green sort line, 2nd man
START/STOP TIME
EMPLOYEES idle.
DAILY HOURS EXPOSED
NOTES
TOTAL SAMPLE
SAMPLE RATE

Existing Regulation Cutoff

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90			0.125	
91			0.144	
92			0.165	
93	Everywhere less than 90.		0.189	
94			0.218	
95	See Tape.		0.250	
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

$\sum n$ = ____ $\sum P$ = ____

$\frac{\sum P}{\sum n}$ = ____ = 0 = Fm (2)

$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}}$ = $\frac{\_\_\_\_}{8}$ = ____ = Ta (3)

Fm x Ta = ____ x ____ = ____ = Fḿ (4)

Equivalent Noise Level <90 dBA ((90))

____ dBA ((85))

____ dBA ((80))

L = 16.61 log (16F) + 85. F = 1/T_p = (1/16)$2^{[(L-85)/5]}$.

TASK NO. 105

EQUIVALENT NOISE EXPOSURE DATA SHEET

PLANT Continental Forest Ind.
OPERATION Clean-up under CNS T8
EMPLOYEES
NOTES

DATA DATE 4/2/80 BY G. Lee
START/STOP TIME
DAILY HOURS EXPOSED
TOTAL SAMPLE 45 sec SAMPLE RATE $1\frac{2}{3}$ sec

MEASURED SOUND LEVEL dBA	NUMBER OF OCCURRENCES (ONE MARK PER OCCURRENCE)	TOTAL OCCURRENCES PER LEVEL n	F	P=nxF
Less than 85			0.	0.
85			0.062	
86			0.072	
87			0.082	
88			0.095	
89			0.109	
90	𝍸	5	0.125	.625
91			0.144	
92			0.165	
93	𝍸||||	9	0.189	1.701
94	𝍸𝍸|||	13	0.218	2.834
95	|	1	0.250	.250
96			0.287	
97			0.330	
98			0.379	
99			0.435	
100			0.500	
101			0.574	
102			0.660	
103			0.758	
104			0.871	
105			1.000	
106			1.149	
107			1.320	
108			1.516	
109			1.741	
110			2.000	
111			2.297	
112			2.639	
113			3.031	
114			3.482	
115			4.000	

Existing Regulation Cutoff

$\Sigma n = 28$ $\Sigma P = 5.41$

$\frac{\Sigma P}{\Sigma n} = \frac{5.41}{28} = .1932 = Fm$ (2)

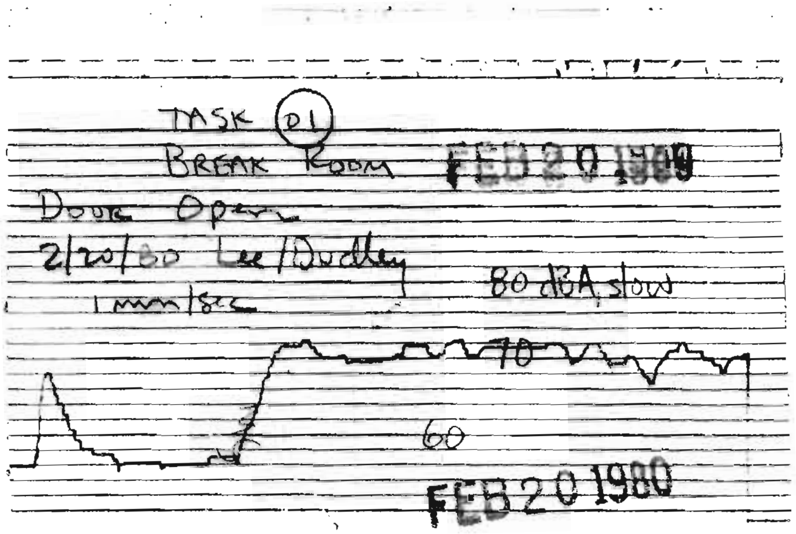
$\frac{\text{Daily Hours Exposed}}{\text{Shift Time}} = \frac{\_\_\_}{8} = \_\_\_ = Ta$ (3)

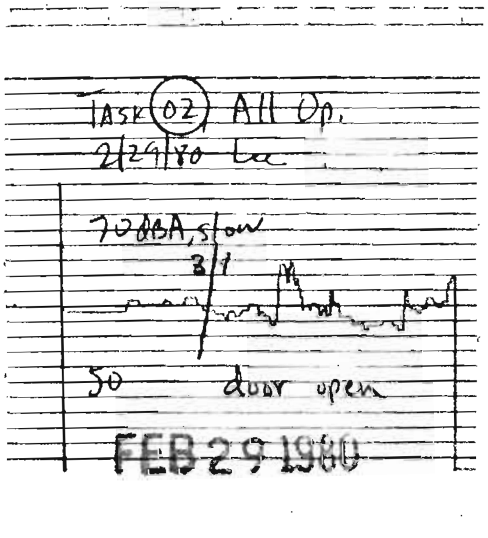
$Fm \times Ta = \_\_\_ \times \_\_\_ = \_\_\_ = Fm'$ (4)

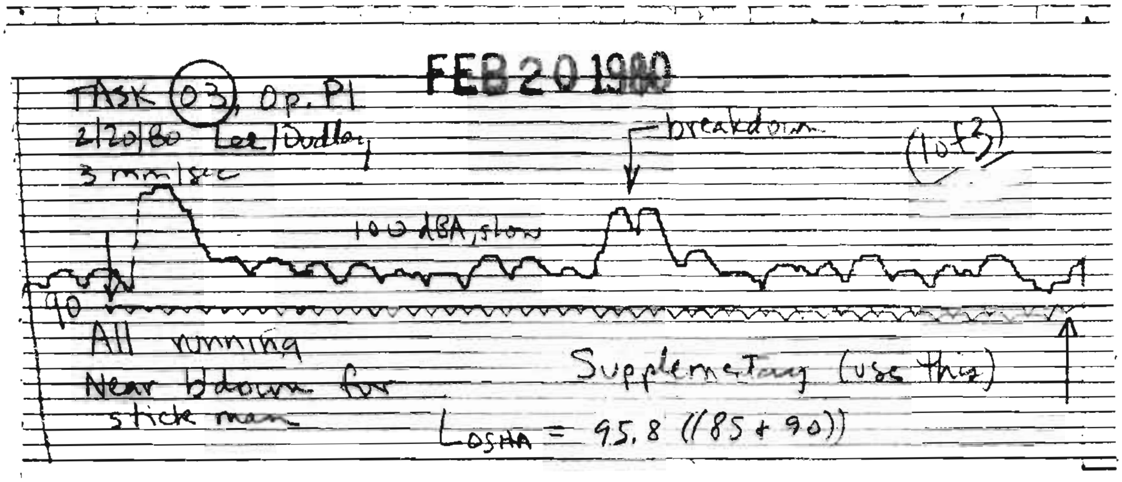
Equivalent Noise Level 93.1 dBA ((90))
93.1 dBA ((85))
___ dBA ((80))

$L = 16.61 \log (16F) + 85.$ $F = 1/T_p = (1/16)2^{[(L-85)/5]}.$

887


TASK (01)
BREAK ROOM
FEB 20 1980
Door Open
2/20/80 Lee/Dudley
1 mm/sec
80 dBA, slow
70
60
FEB 20 1980


TASK (02) All Op.
2/29/80 Lee
70 dBA, slow
3/1
50
door open
FEB 29 1980



FEB 20 1980

TASK ⓪③, Op. P1
2/20/80 Lee/Dudley
3 mm/sec

breakdown

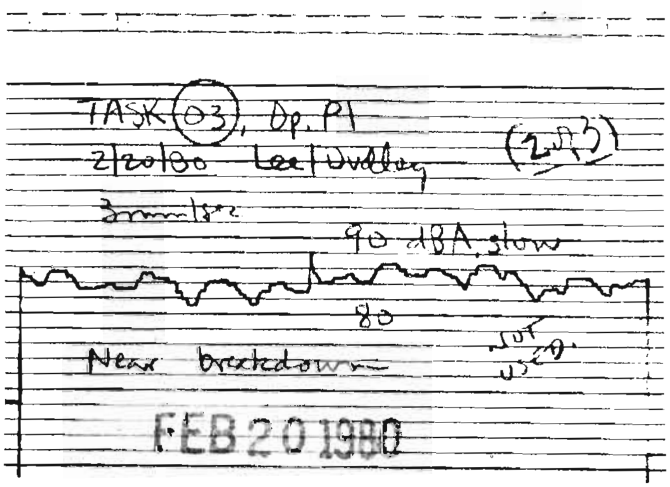
(1 of 3)

100 dBA, slow

All running
Near b'down for
stick man

Supplementary (use this)

L_{OSHA} = 95.8 ((85 + 90))



TASK ⓪③, Op. P1
2/20/80 Lee/Dudley
3mm/sec

(2 of 3)

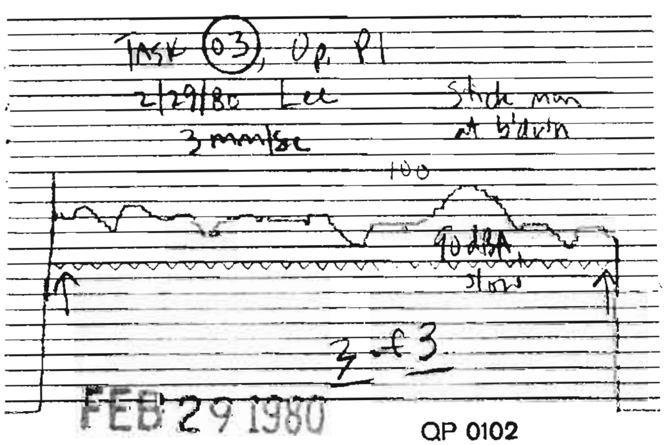
90 dBA, slow

Near breakdown

NOT USED.

FEB 20 1980

Brüel & Kjær



TASK ⓪③, Op. P1
2/29/80 Lee
3mm/sec

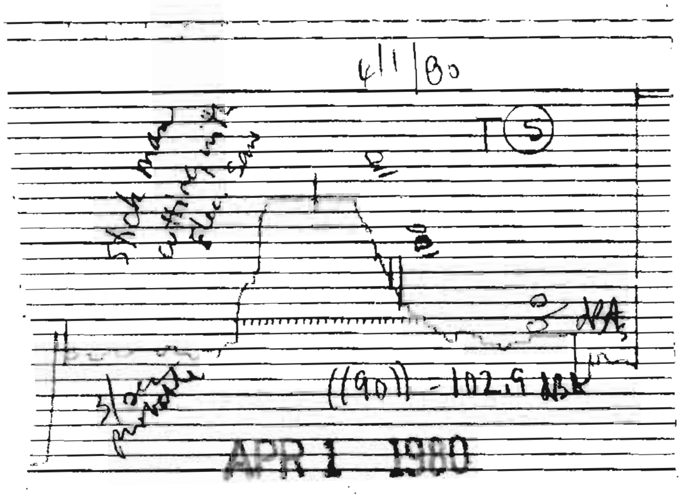
Stick man at b'down

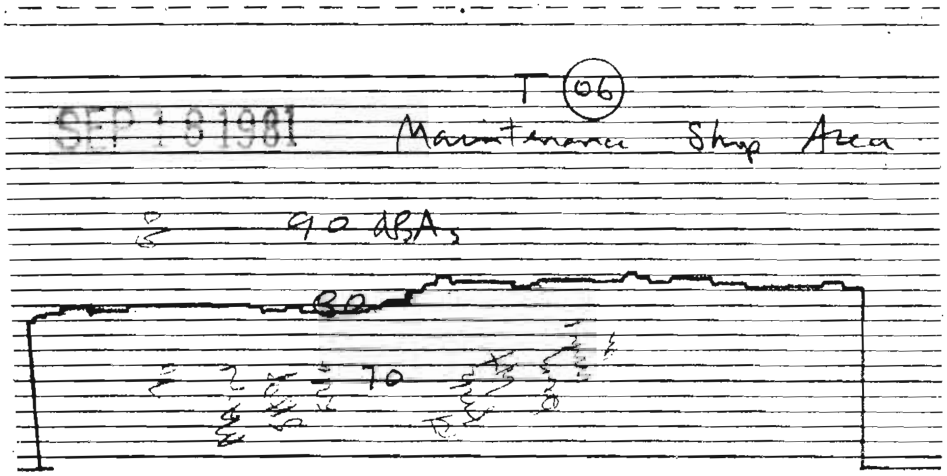
90 dBA, slow

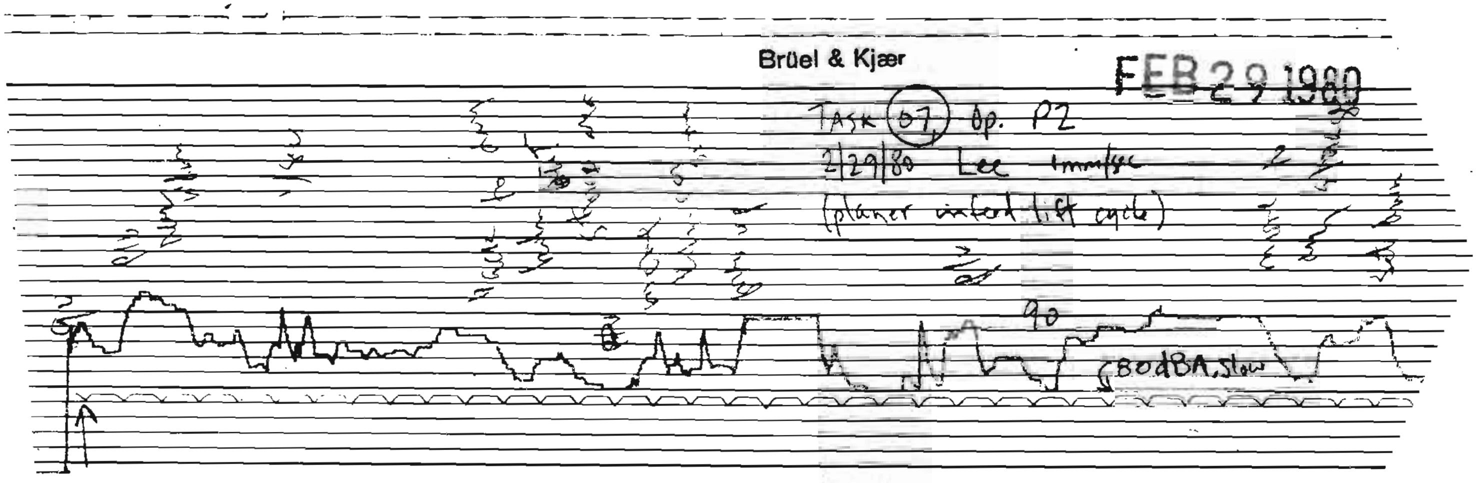
3 of 3

FEB 29 1980

QP 0102


4/11/80
T ⑤
Shock mass cutting with elec. saw
110
100
90 dBA
((90)) = 102.9 dBA
APR 1 1980


T (06)
SEP 18 1981
Maintenance Shop Area
90 dBA
80
70

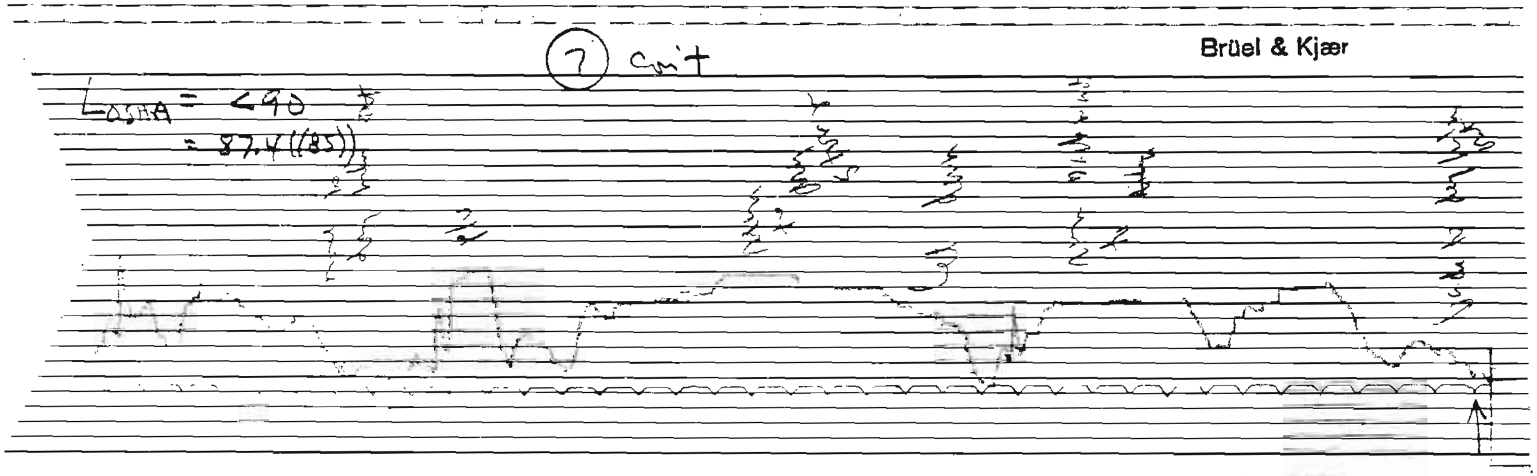


FEB 29 1980

TASK (07) Op. P2
2/29/80 Lee 1mm/sec
(planer infeed lift cycle)

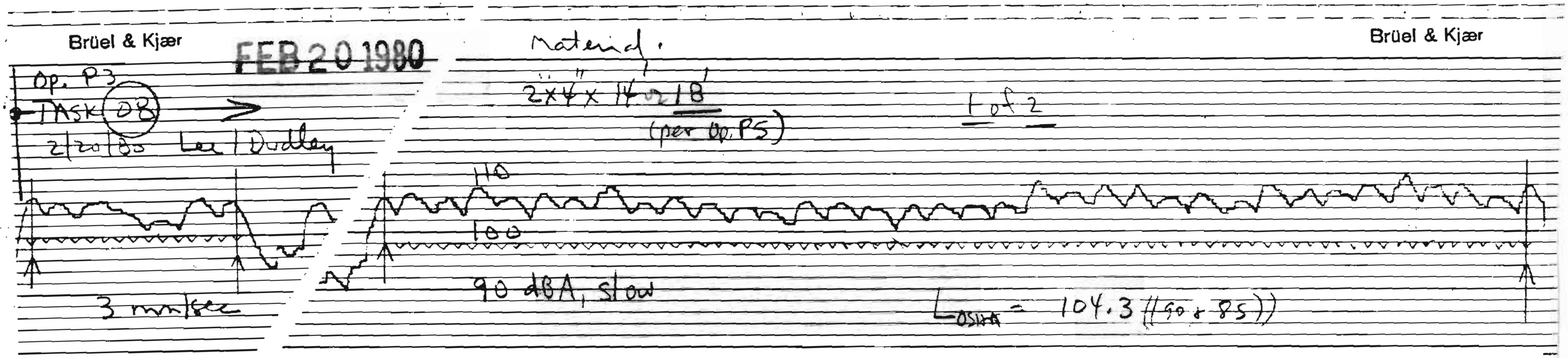
90

80dBA, slow



⑦ Con't

$L_{OSHA} = <90$
$= 87.4 ((85))$



FEB 20 1980

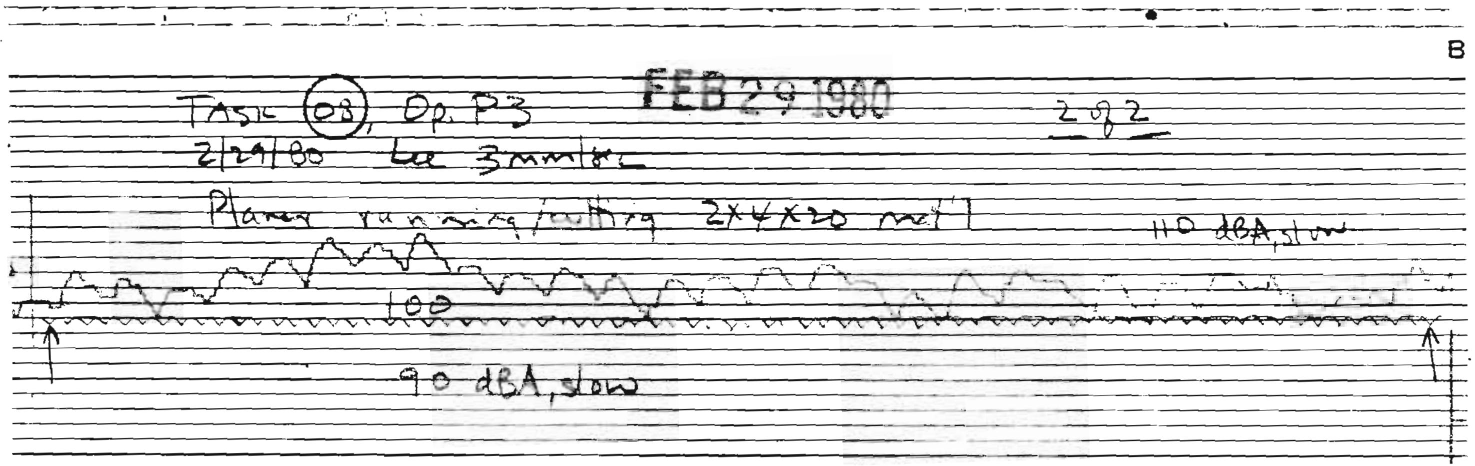
Op. P3
TASK ⑧ →
2/20/80 Lee / Dudley
3 mm/sec

Material:
2"x4"x 14 or 18'
(per Op. P5)

1 of 2

90 dBA, slow

L_{OSHA} = 104.3 ((90 & 85))



FEB 29 1980

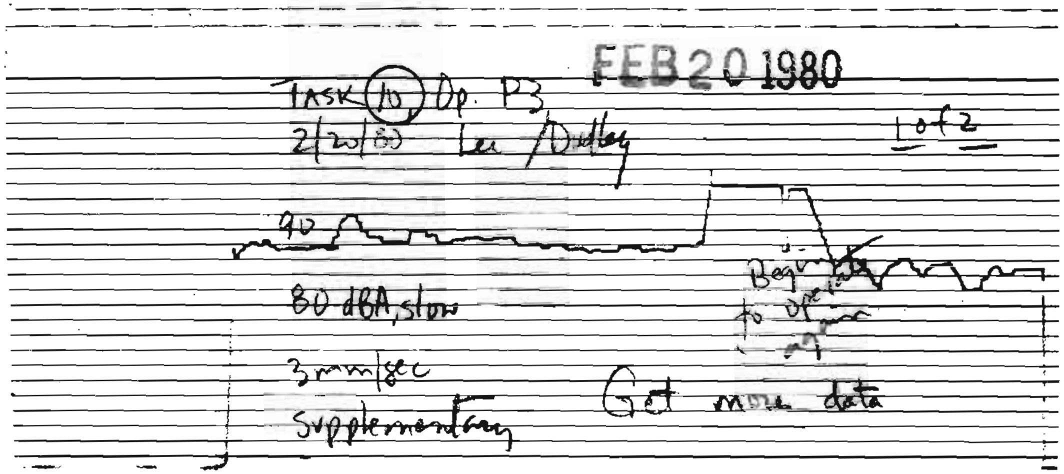
TASK ⑧, Op. P3
2/29/80 Lee 3 mm/sec

2 of 2

Planer running/cutting 2x4x20 mat'l

110 dBA, slow

90 dBA, slow



FEB 20 1980

TASK ⑩ Op. P3
2/20/80 Lee / Dudley

1 of 2

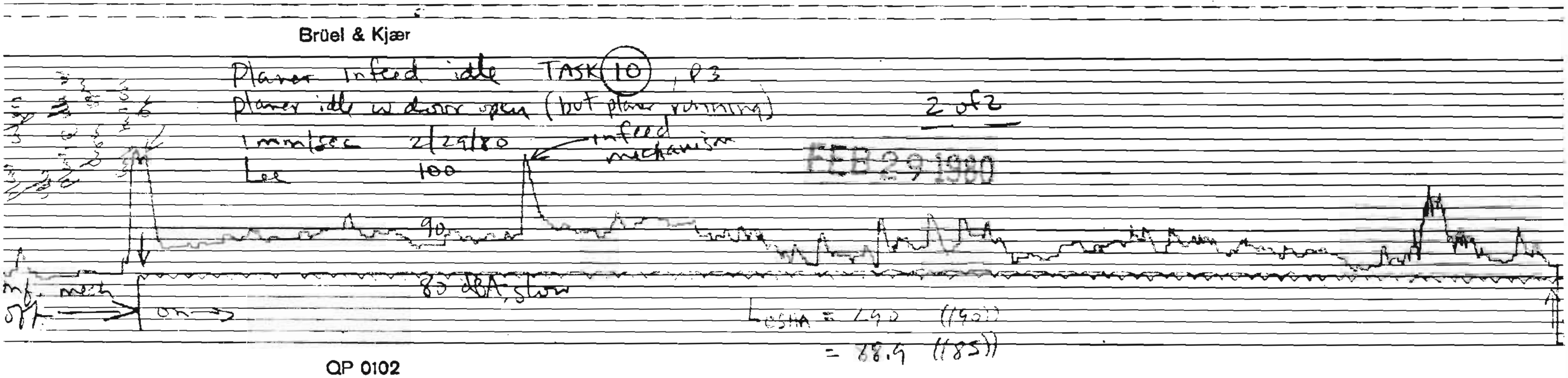
80 dBA, slow

3 mm/sec

Supplementary

Begin to operate

Get more data



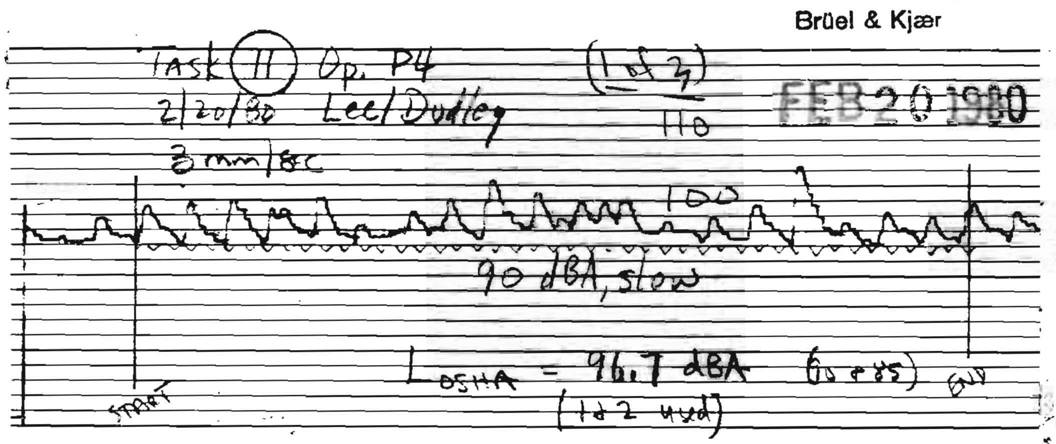
Planer infeed idle TASK ⑩, P3
Planer idle w door open (but planer running)
1 mm/sec 2/29/80
Lee

2 of 2

FEB 29 1980

80 dBA, slow

$L_{OSHA} = L90$ ((90))
= 88.9 ((85))



TASK ⑪ Op. P4

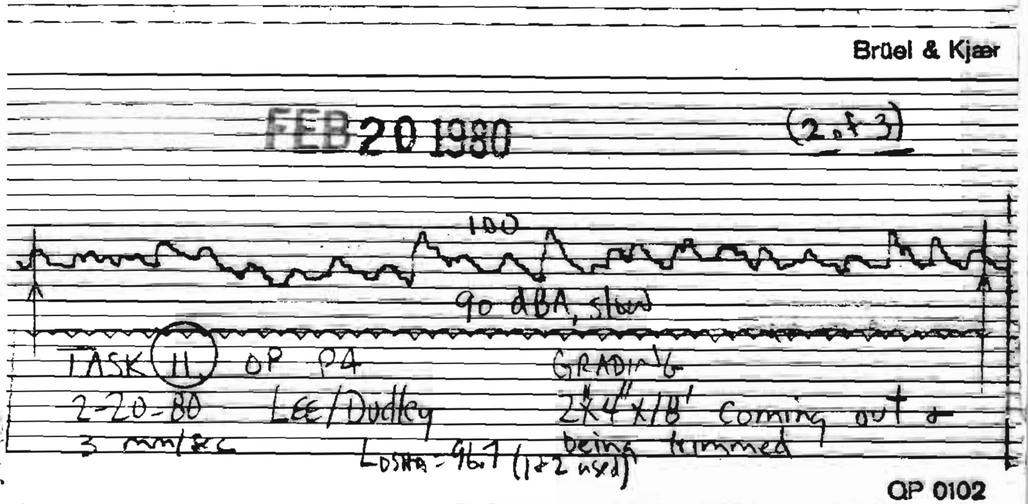
2/20/80 Lee/Dudley

3 mm/sec

(1 of 3)
110

FEB 20 1980

L_{OSHA} = 96.7 dBA (to 85)
(1 & 2 used)



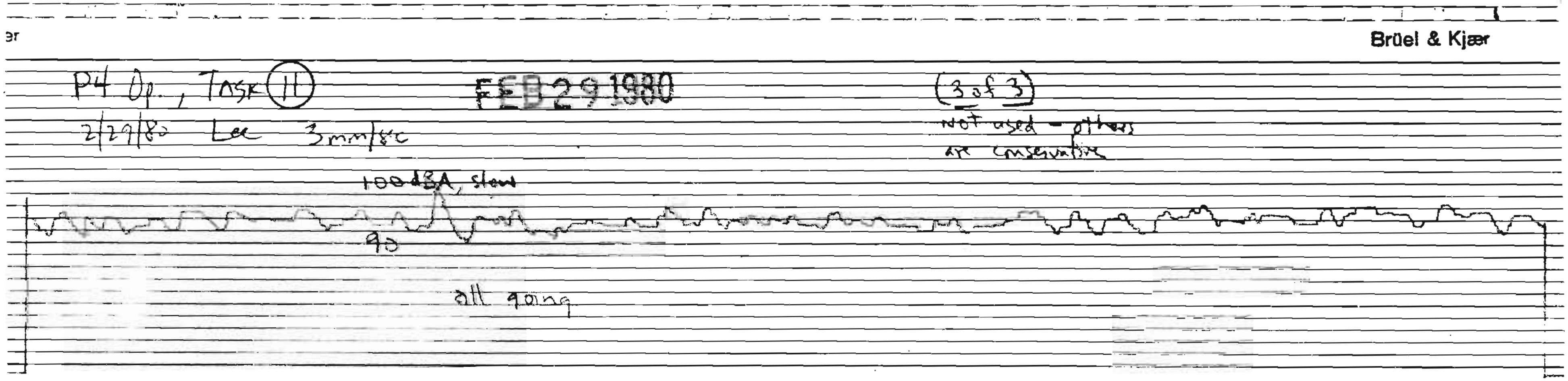
FEB 20 1980

(2 of 3)

TASK ⑪ OP P4
2-20-80 Lee/Dudley
3 mm/sec

GRADING
2"x4"x18' coming out & being trimmed

L_{OSHA} = 96.7 (1 & 2 used)

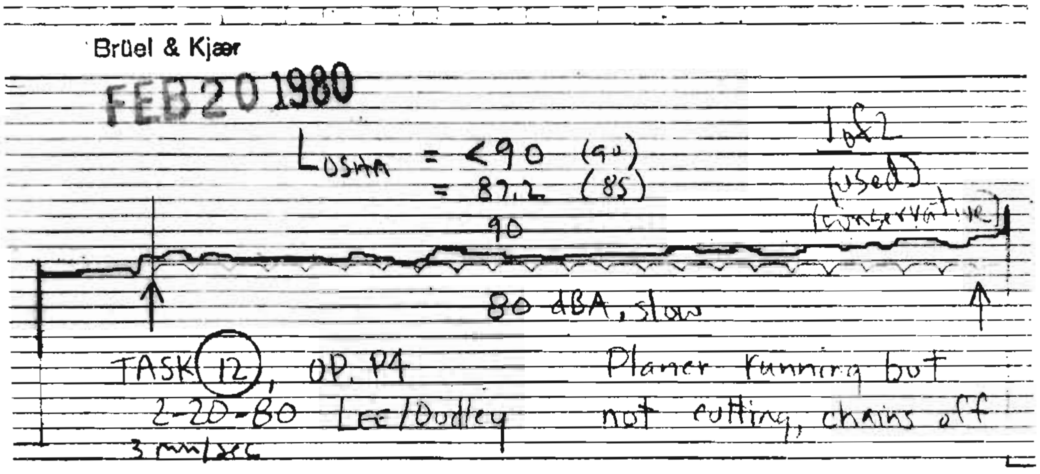


P4 Op., Task ⑪
2/29/80 Lee 3 mm/sec

FEB 29 1980

(3 of 3)
not used - others are conservative

all going



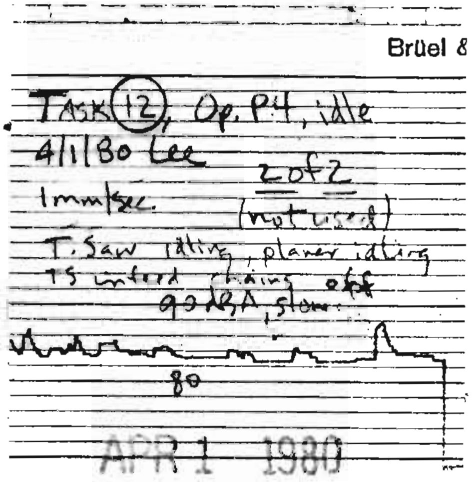
FEB 20 1980

L_{OSHA} = <90 (90)
= 87.2 (85)

1 of 2
(used)
(conservative)

TASK ⑫, OP. P4
2-20-80 Lee/Dudley
3 mm/sec

Planer running but
not cutting, chains off



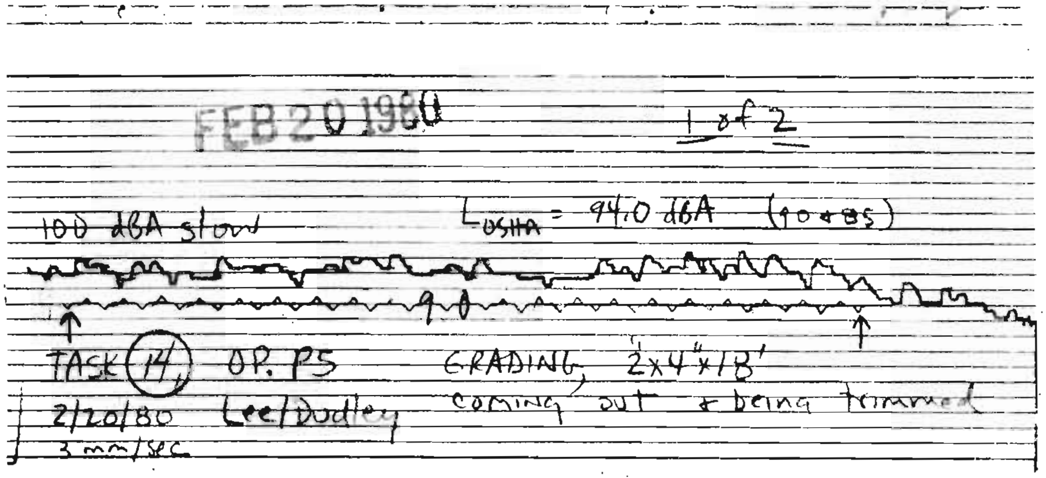
TASK ⑫, Op. P4, idle
4/1/80 Lee
1 mm/sec

2 of 2
(not used)

T. Saw idling, planer idling
TS infeed chains off

90 dBA, slow

APR 1 1980



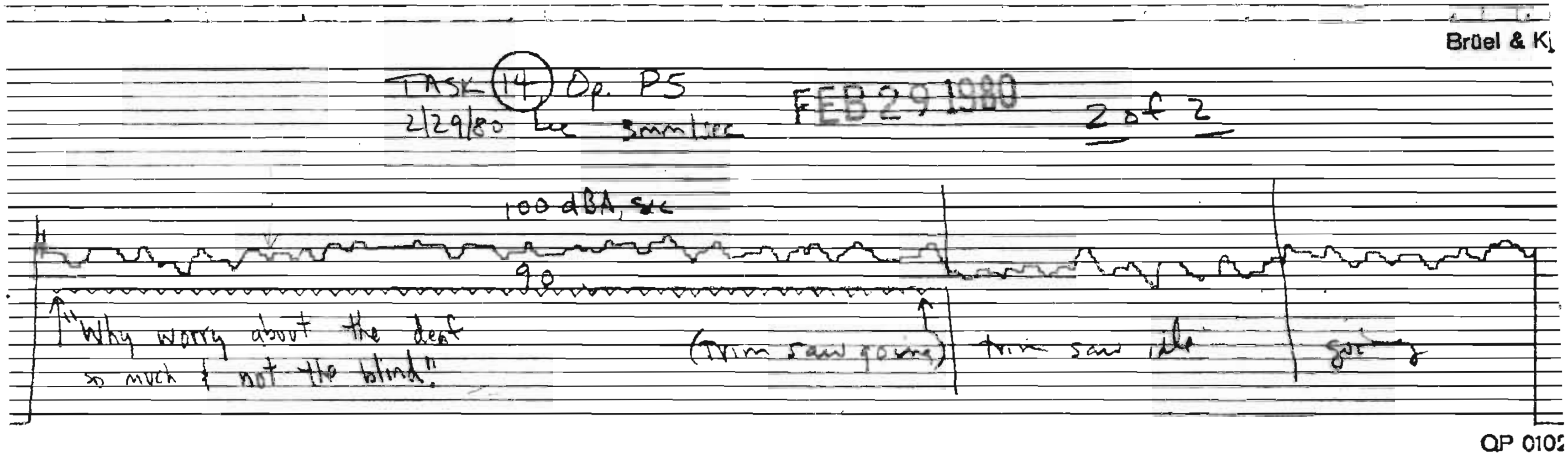
FEB 20 1980

1 of 2

L_{OSHA} = 94.0 dBA (90+85)

TASK ⑭, OP. P5
2/20/80 Lee/Dudley
3 mm/sec

GRADING, 2"x4"x18'
coming out & being trimmed



TASK ⑭ Op. P5
2/29/80 Lee 3mm/sec

FEB 29 1980

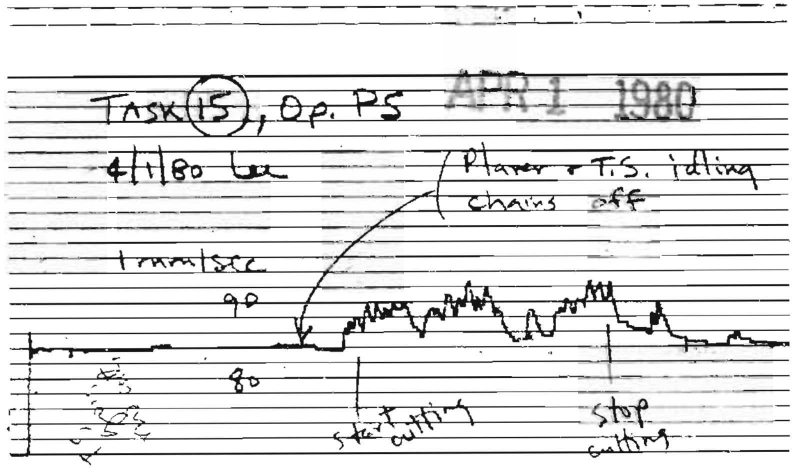
2 of 2

"Why worry about the deaf so much & not the blind"

(Trim saw going)

trim saw idle

going



TASK ⑮, Op. P5

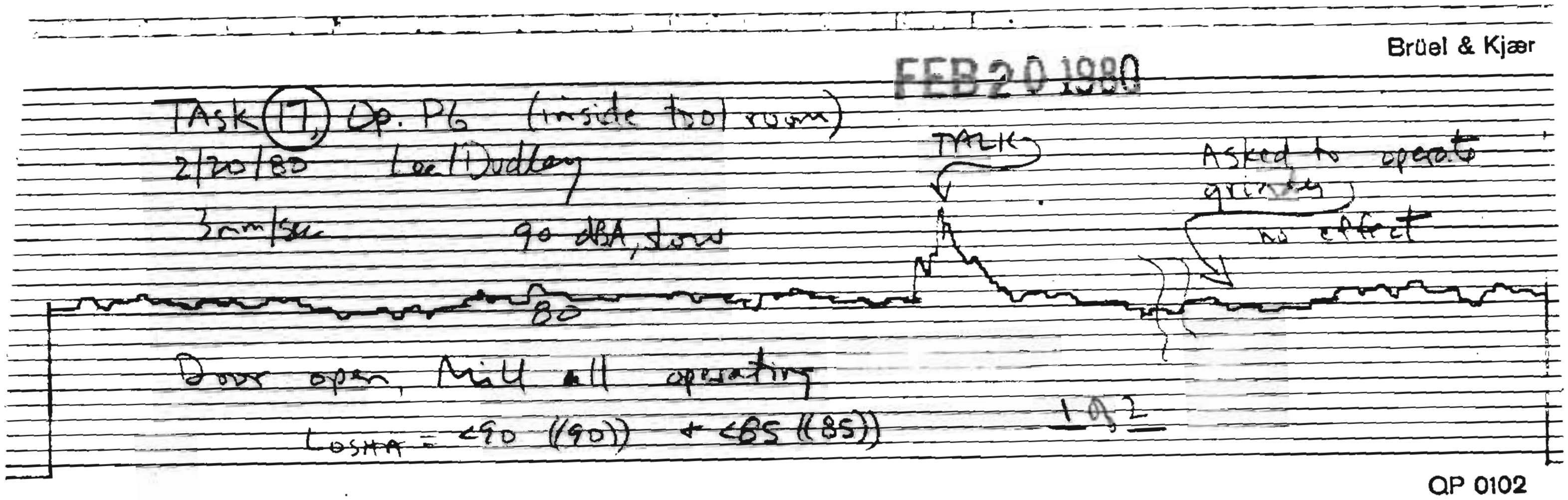
APR 1 1980

4/1/80 Lee

Planer + T.S. idling
chains off

start cutting

stop cutting



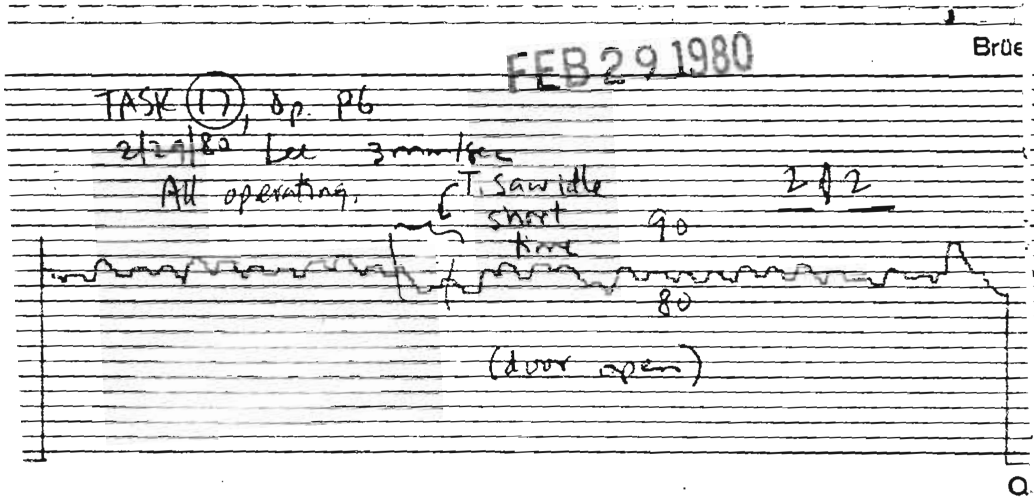
TASK ⑰, Op. P6 (inside tool room)
2/20/80 Lee + Dudley
3mm/sec 90 dBA, slow

Asked to operate grinder
no effect

Door open, Mill all operating

L_{OSHA} = <90 ((90)) + <85 ((85))

1 of 2

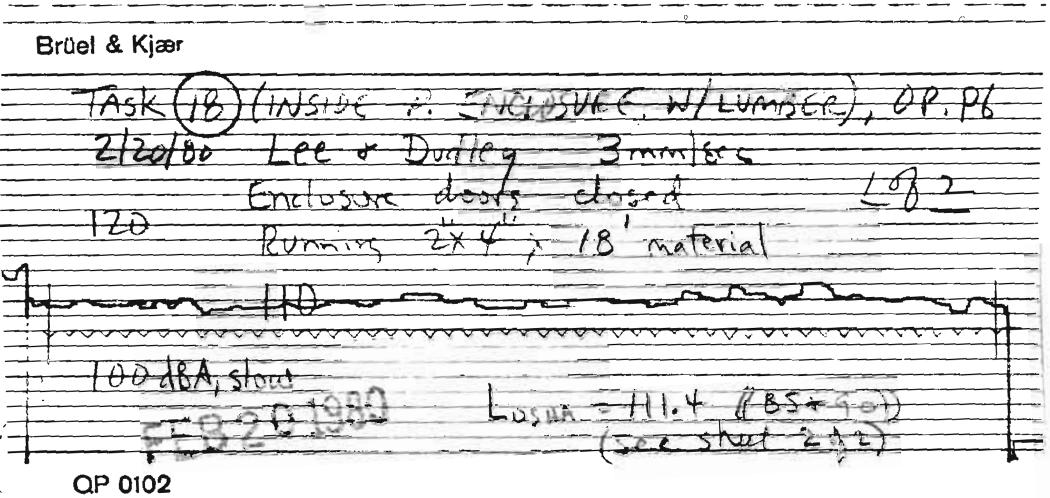


TASK ⑰, Op. P6
2/29/80 Lee 3mm/sec
All operating.

T. saw idle
short
time

2 of 2

(door open)



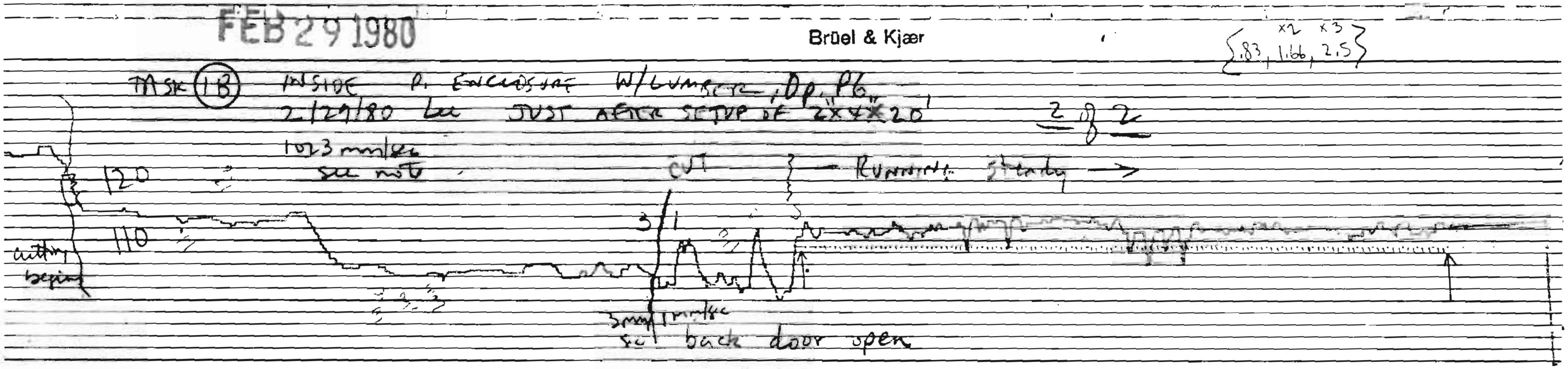
TASK ⑱ (INSIDE P. ENCLOSURE, W/LUMBER), OP. P6
2/20/80 Lee + Dudley 3mm/sec
Enclosure doors closed

1 of 2

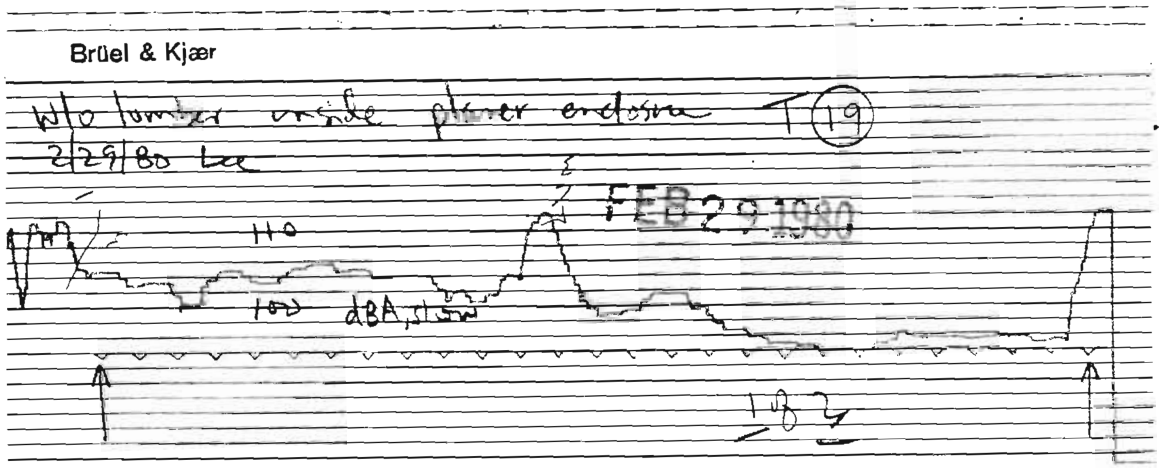
Running 2"x4" ; 18' material

100 dBA, slow

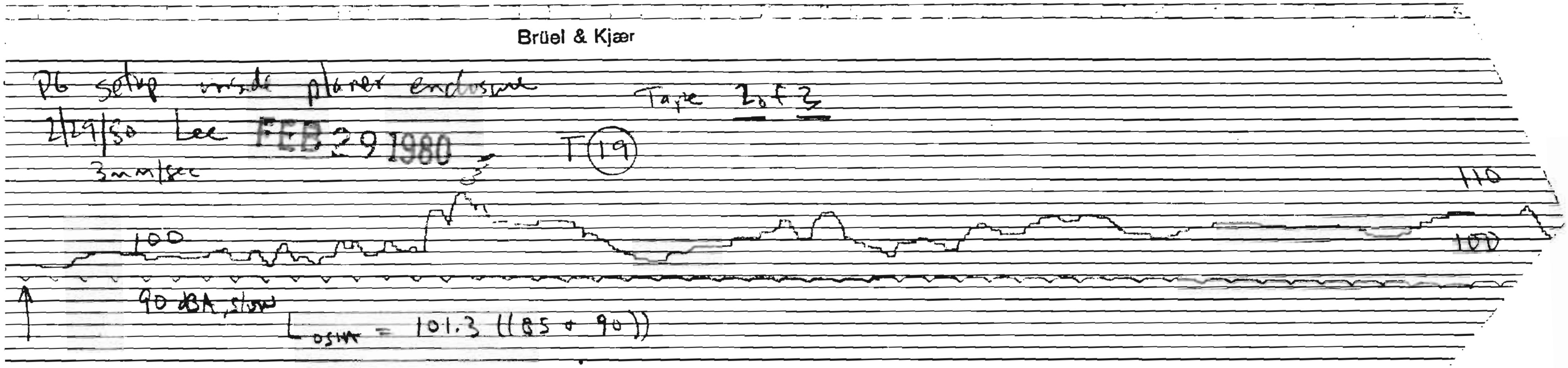
L_{OSHA} = 111.4 ((85+90))
(see sheet 2 of 2)



THIS TAPE TIES TO TASK 19 RECORDING of 2/29/80. QP 0102



QP 0102



P6 setup inside planer enclosure

2/29/80 Lee FEB 29 1980

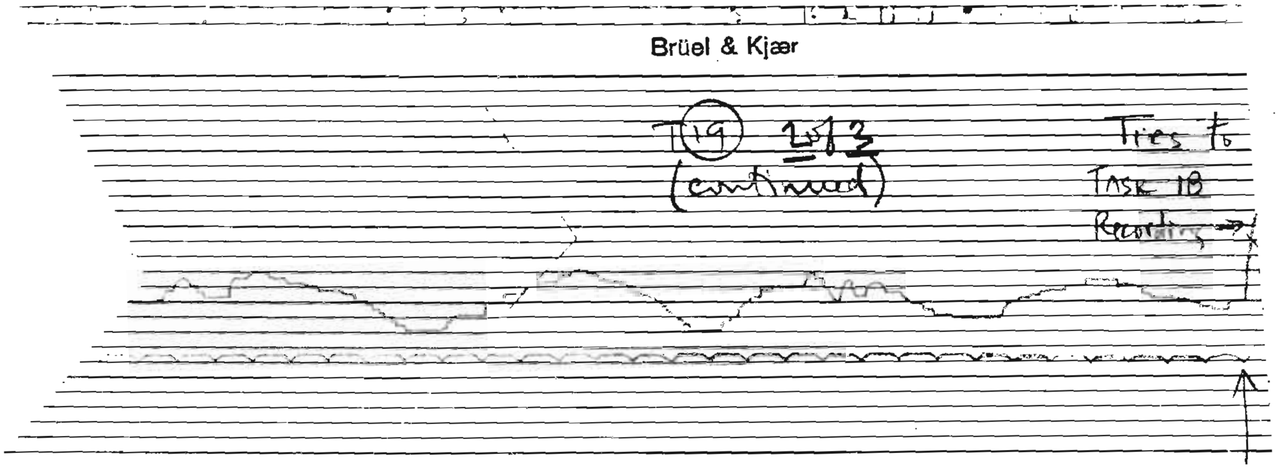
3mm/sec

Tape 2 of 3

T19

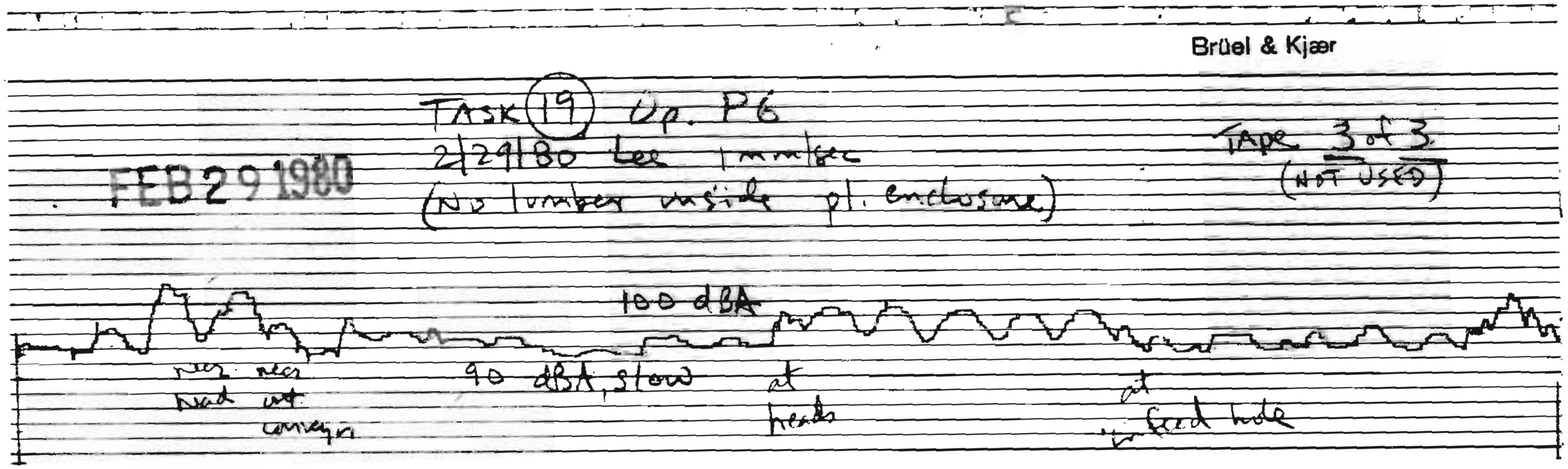
90 dBA, slow

L_{OSHA} = 101.3 ((85 + 90))



T19 2 of 3
(continued)

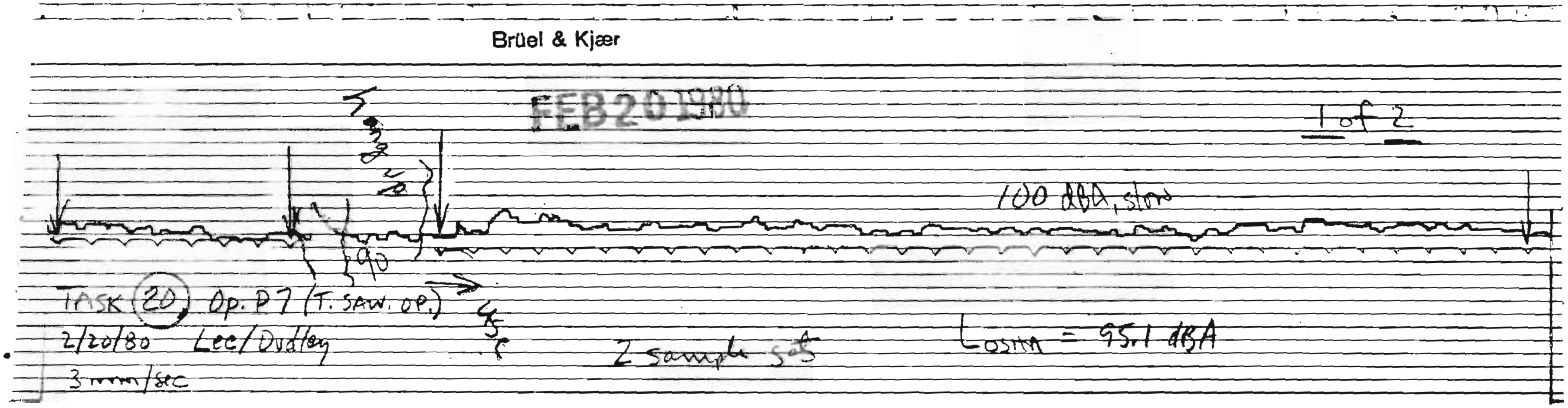
Tries to
Task 1B
Recording →



FEB 29 1980

TASK ⑲ Op. P6
2/29/80 Lee 1 mm/sec
(No lumber inside pl. enclosure)

TAPE 3 of 3
(NOT USED)



FEB 20 1980

1 of 2

TASK ⑳ Op. P7 (T. SAW. OP.)
2/20/80 Lee/Dudley
3 mm/sec

2 sample sets

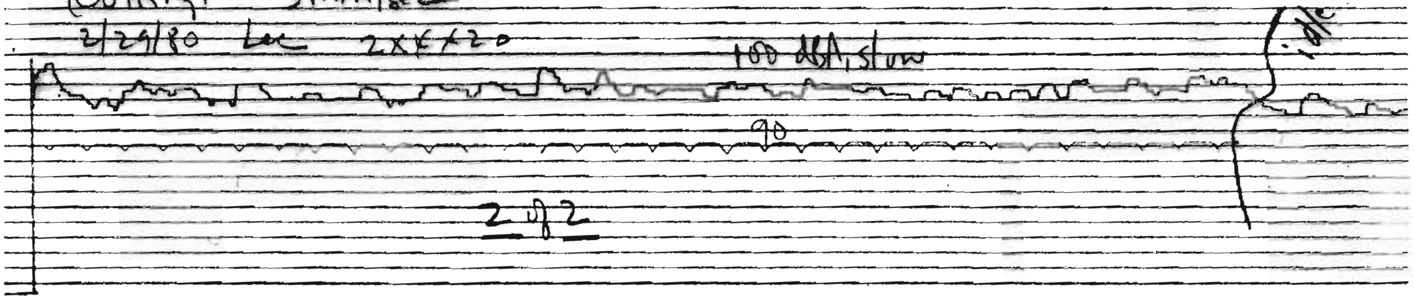
L_{OSHA} = 95.1 dBA

TASK ⑳ Oper. P7

FEB 29 1980

(Cutting) 3 mm/sec

2/29/80 Lee 2XEX20



2 of 2

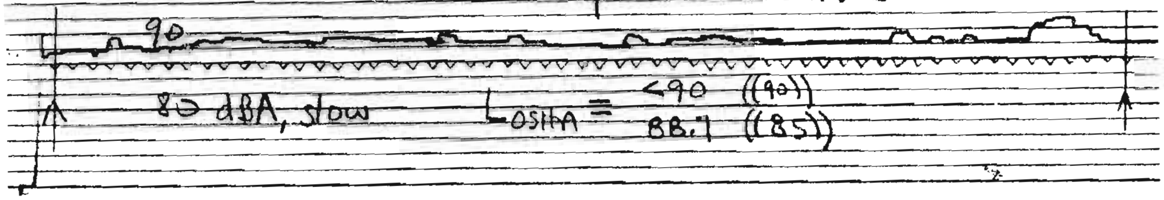
FEB 20 1980

TASK ㉑ Op. P7 (TRIM SAW)

2/20/80 Lee/Dudley

1 of 2 (used)

Idle, Saws & Conveyor from Millwright Running 3 mm/sec



L_{OSHA} = <90 ((90))
88.7 ((85))

Brüel & Kjær

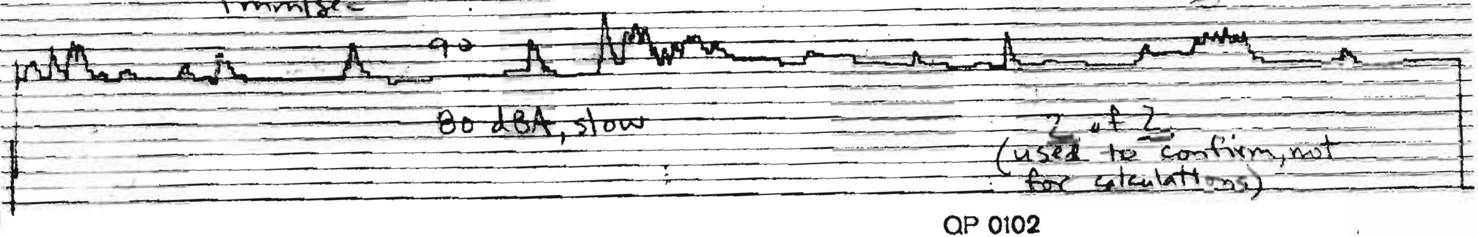
TASK ㉑ Op. P7 (TRIM SAW)

APR 1 1980

4/1/80 Lee

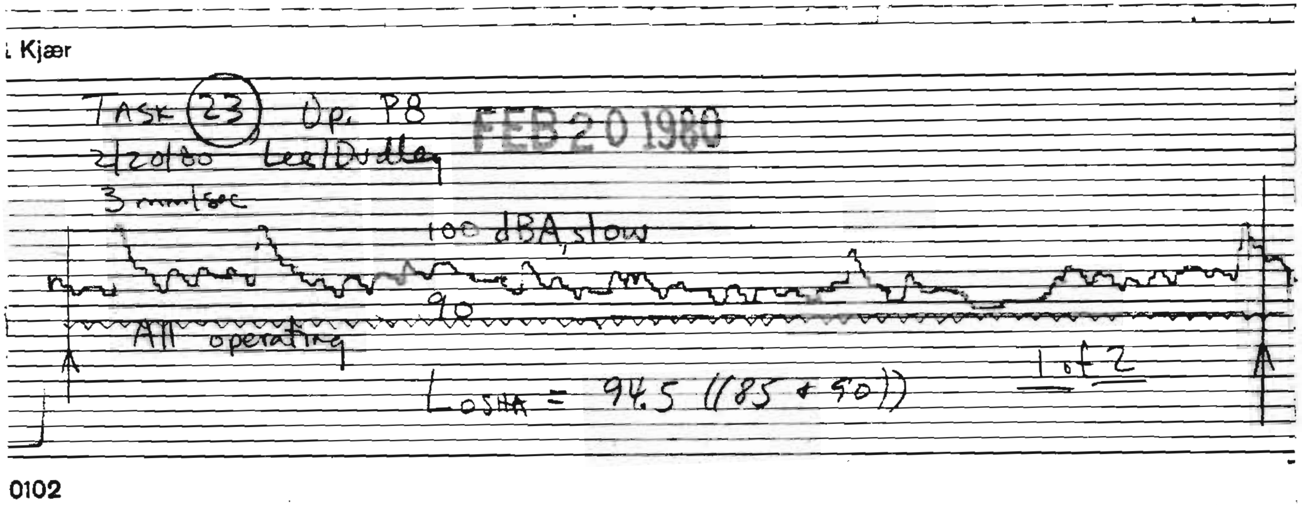
idle - planer idle, TS infeed chains off

1 mm/sec



2 of 2
(used to confirm, not for calculations)

QP 0102



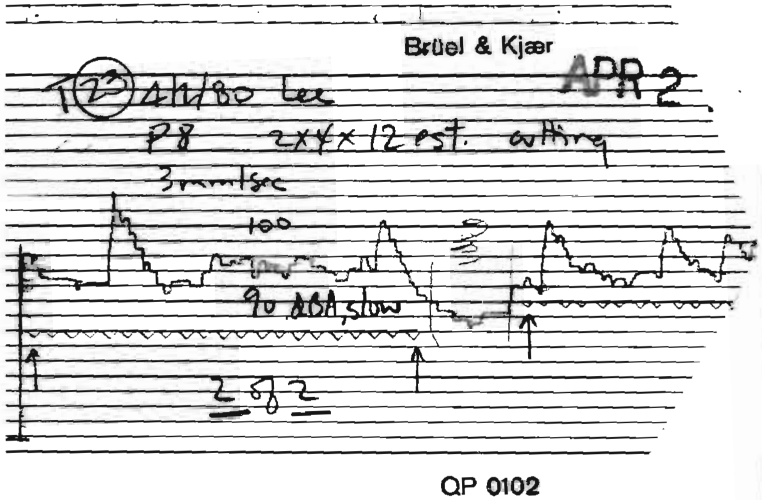
TASK ㉓ Op. P8
2/20/80 Lee/Dudley
3 mm/sec

FEB 20 1980

All operating

L_{OSHA} = 94.5 ((85 + 90))

1 of 2

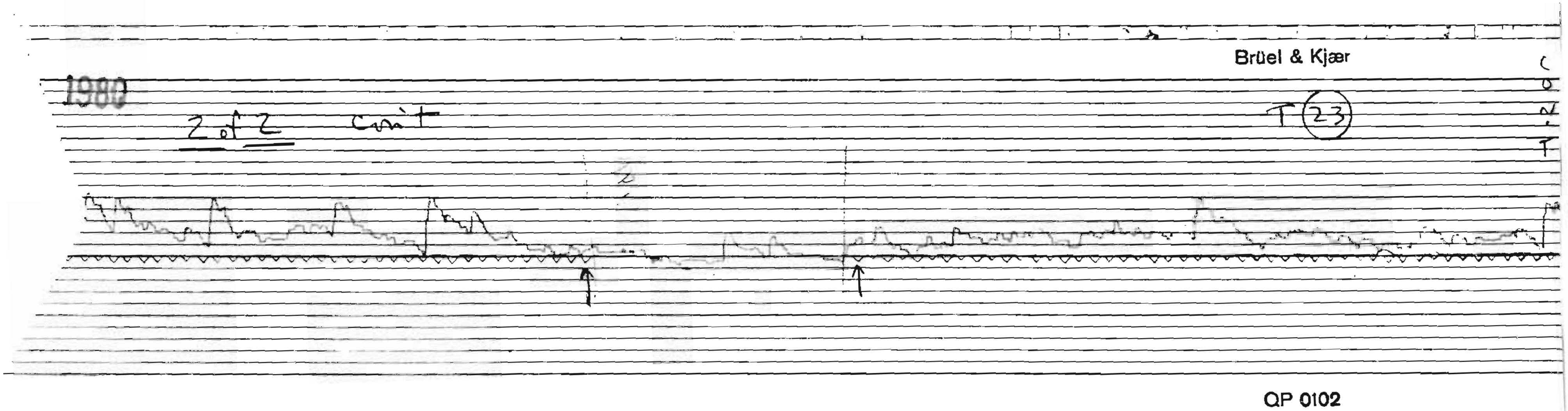


T ㉓ 4/1/80 Lee

APR 2

P8 2x4x12 est. cutting
3 mm/sec

2 of 2

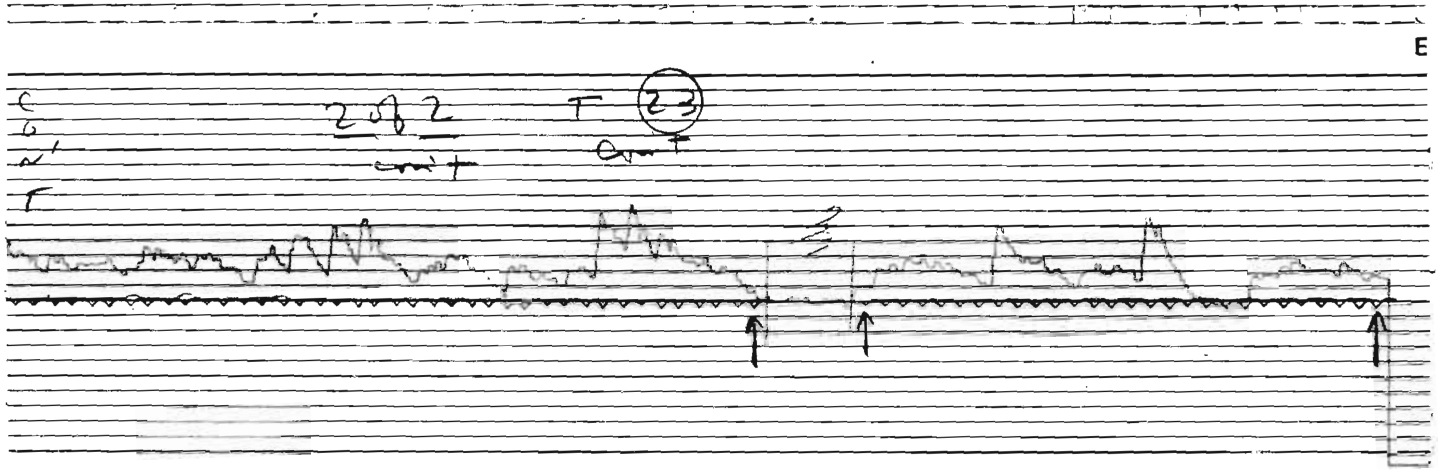


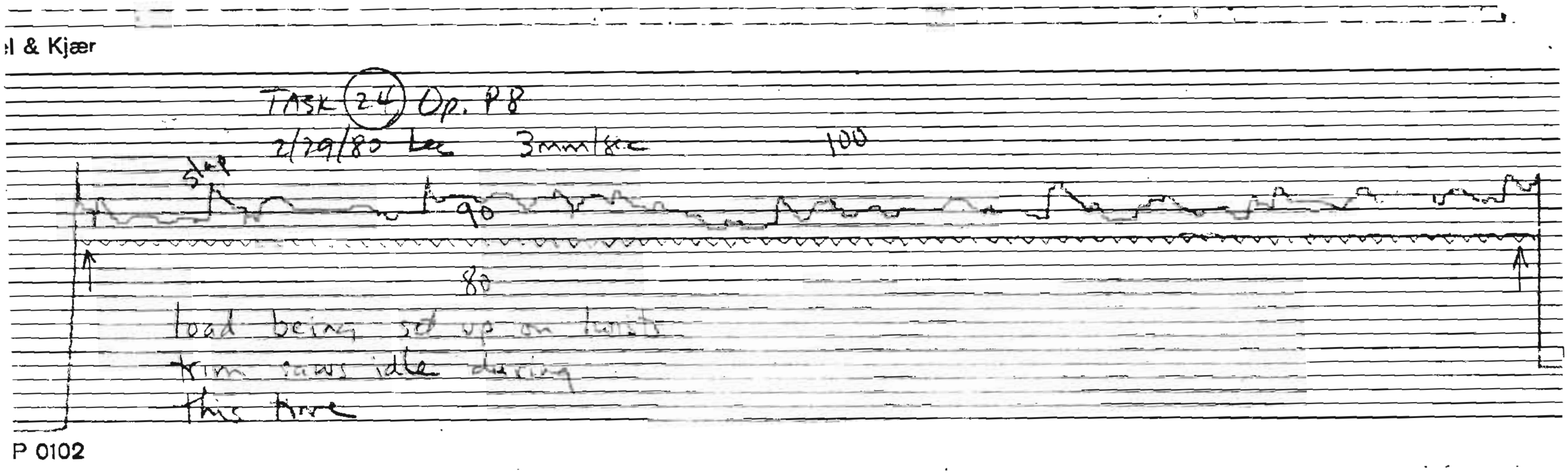
1980

2 of 2 con't

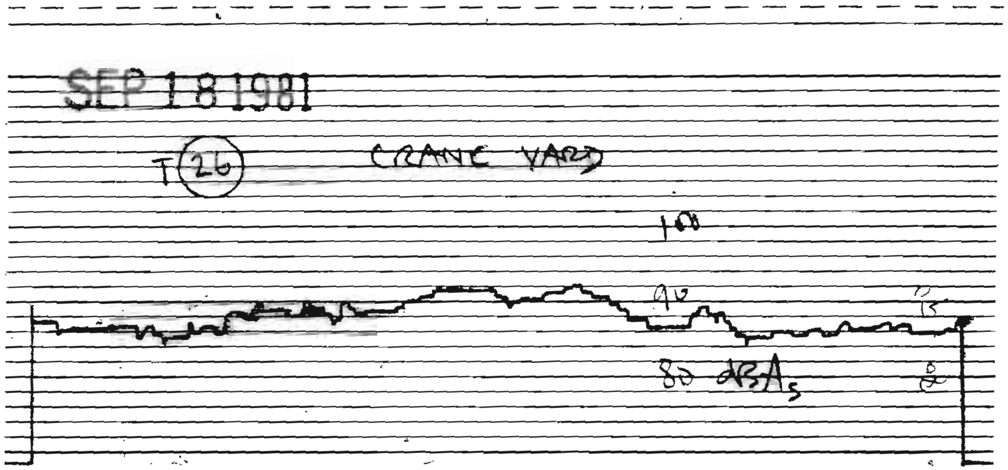
T ㉓

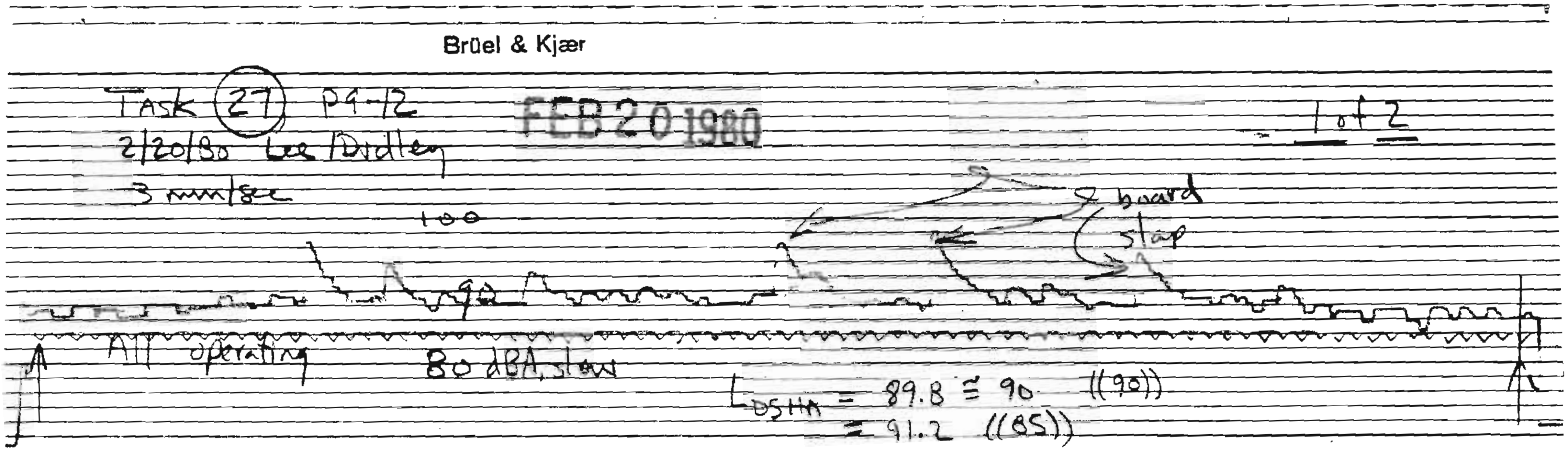
CONT



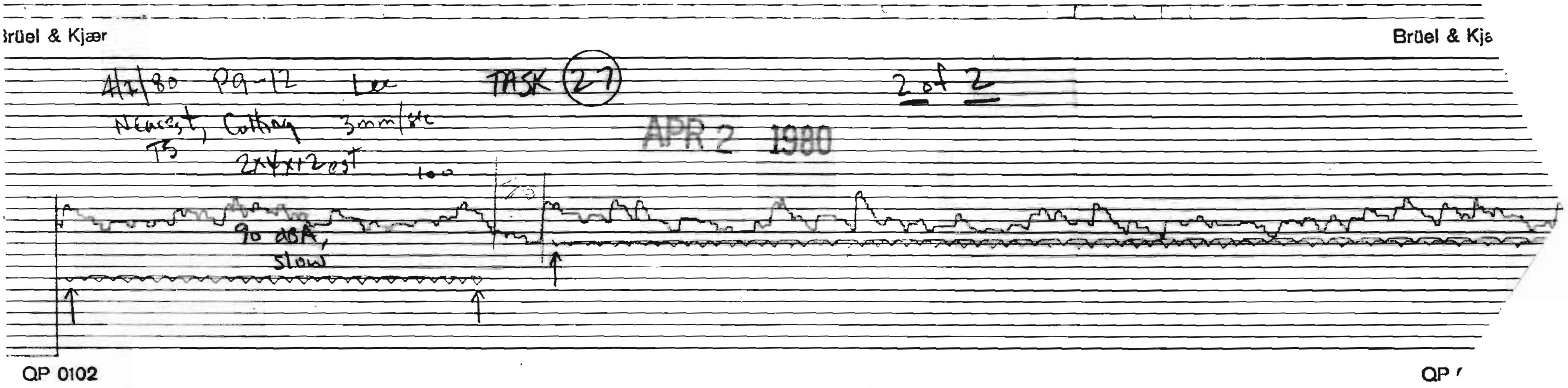


load being set up on hoists
trim saws idle during
this time


SEP 18 1981
T (26) CRANE YARD
100
90
80 dBA$_s$


Brüel & Kjær
Task (27) P9-12
2/20/80 Lee/Dudley
3 mm/sec
FEB 20 1980
1 of 2
100
board slap
90
All operating
80 dBA, slow
L_{OSHA} = 89.8 ≅ 90 ((90))
= 91.2 ((85))

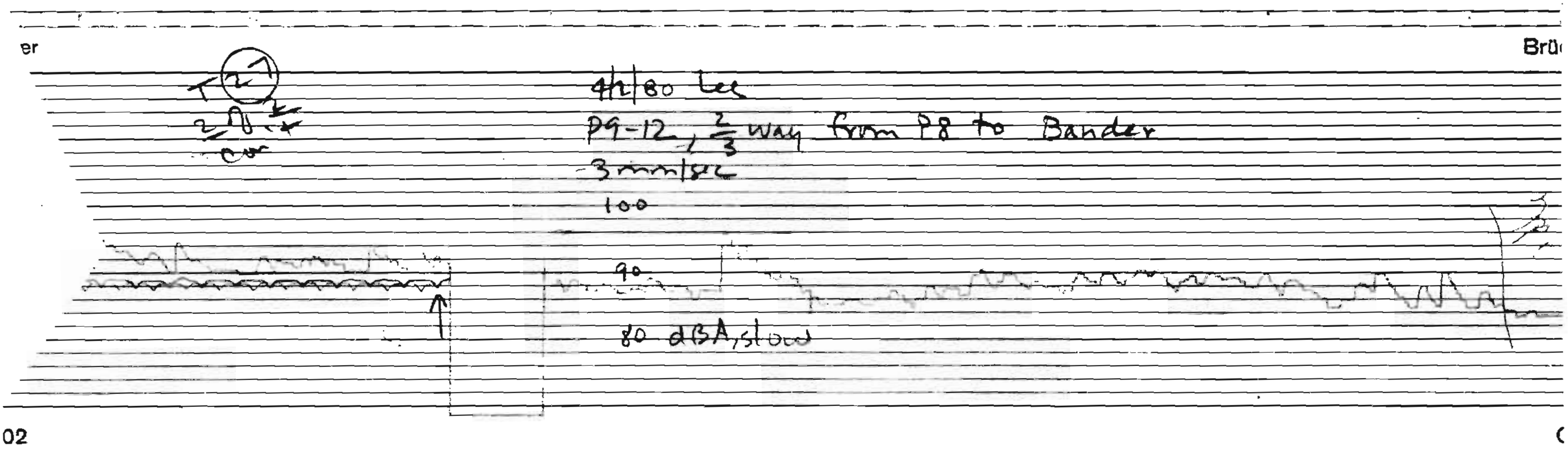
QP 0102



4/2/80 P9-12 Lee TASK ㉗ 2 of 2

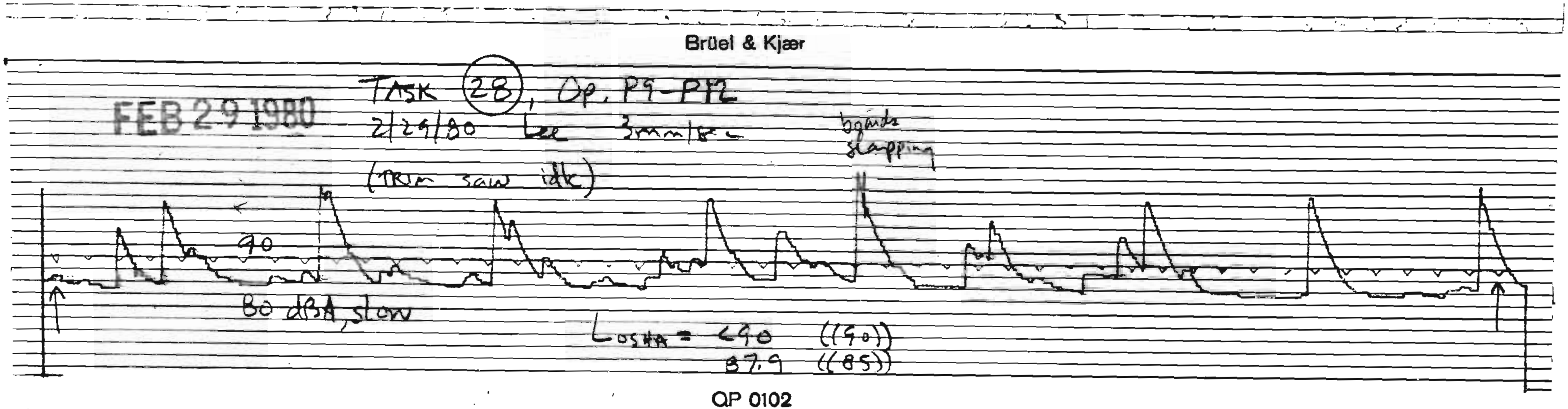
Nearest, Cutting 3mm/sec
T3 2x4x12 est

APR 2 1980



T㉗
2 ft 2 cut

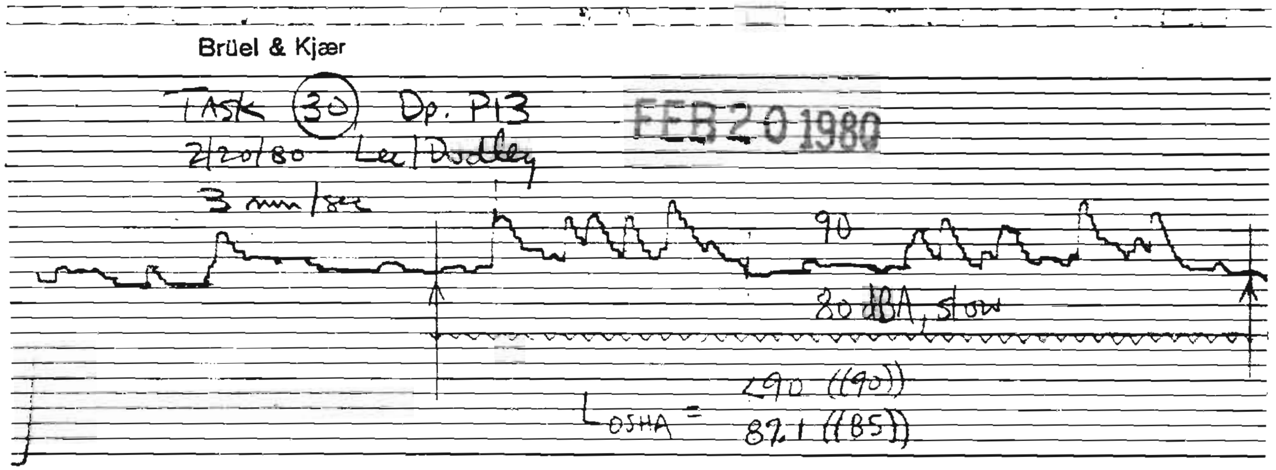
4/2/80 Lee
P9-12, $\frac{2}{3}$ way from P8 to Bander
3mm/sec



FEB 29 1980

TASK ㉘, Op. P9-P12
2/29/80 Lee 3mm/sec
(Trim saw idle)

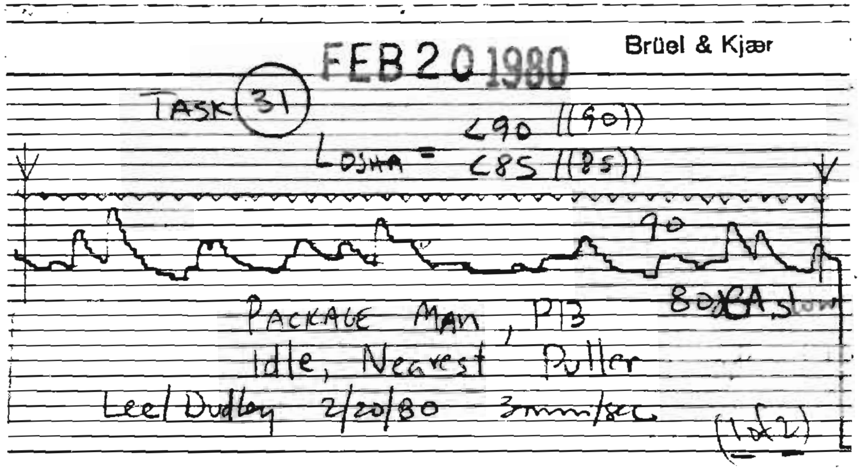
L_{OSHA} = <90 ((90))
87.9 ((85))



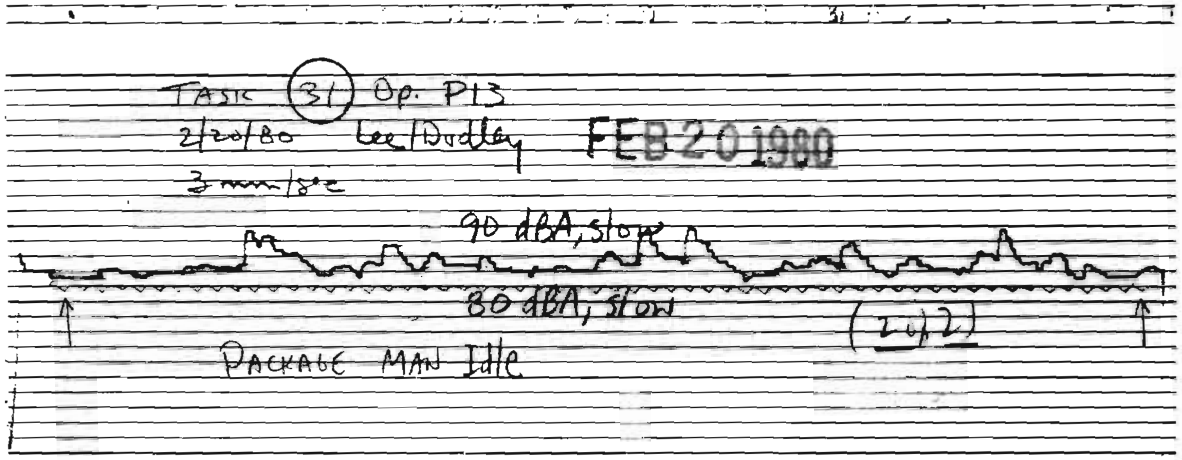
TASK ㉚ Op. P13
2/20/80 Lee/Dudley
3 mm/sec

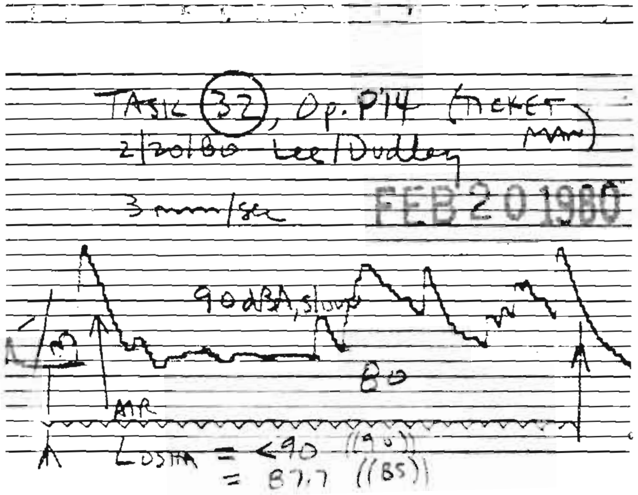
FEB 20 1980

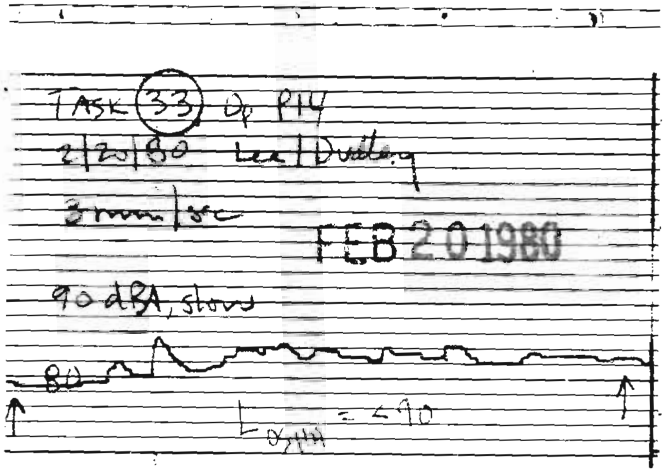
L_{OSHA} = <90 ((90))
87.1 ((85))

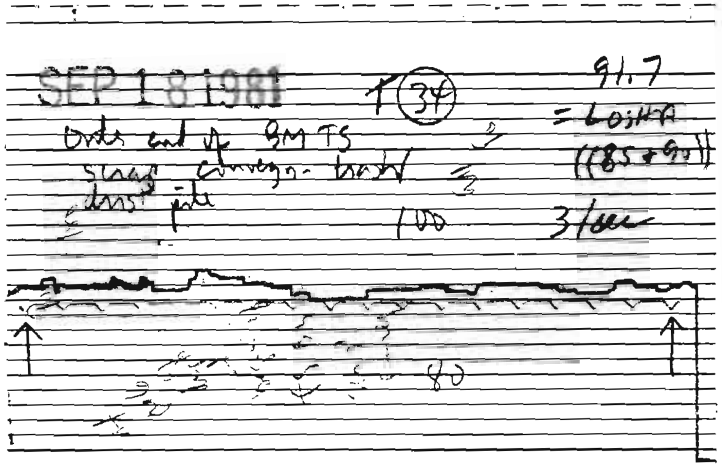

Brüel & Kjær
FEB 20 1980
TASK ㉛
L_{OSHA} = <90 ((90))
<85 ((85))
90
80 dBA, slow
PACKAGE MAN, P13
Idle, Nearest Puller
Lee/Dudley 2/20/80 3mm/sec
(1 of 2)

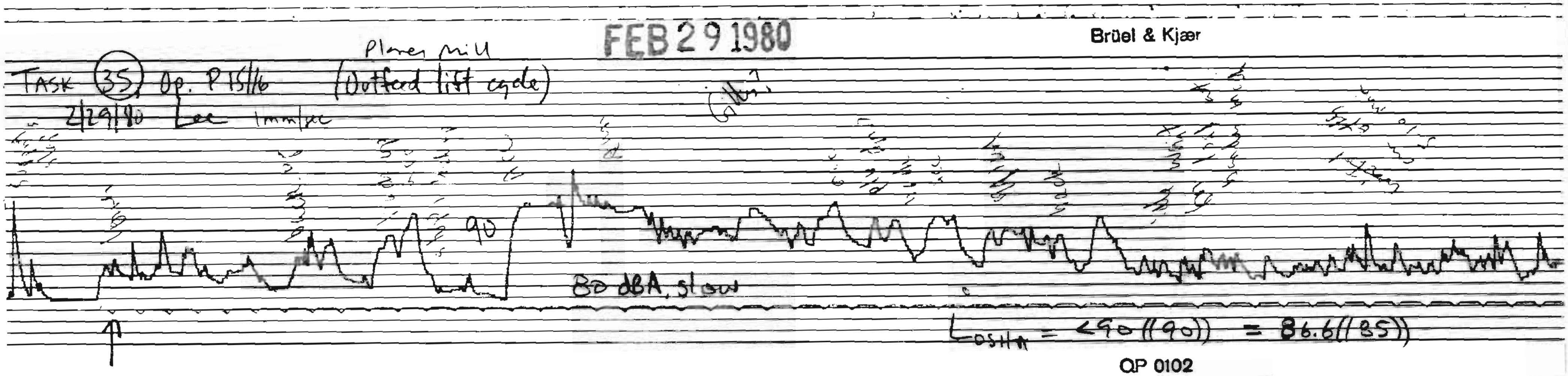
QP 0102


TASK ㉛ Op. P13
2/20/80 Lee/Dudley
FEB 20 1980
~~3mm/sec~~
90 dBA, slow
80 dBA, slow
(2 of 2)
PACKAGE MAN Idle


TASK ㉜, Op. P14 (TICKET MAN)
2/20/80 Lee/Dudley
3mm/sec
FEB 20 1980
90 dBA, slow
80
AIR
L_{OSHA} = <90 ((90))
= 87.7 ((85))


TASK ㉝ Op. P14
2/20/80 Lee/Dudley
3mm/sec
FEB 20 1980
90 dBA, slow
80
L_{OSHA} = <90


SEP 18 1981
T ㉞
91.7
= L_{OSHA}
((85 + 90))
Outs end of 9M TS
[illegible] conveyor [illegible]
[illegible]
100
3/sec
80



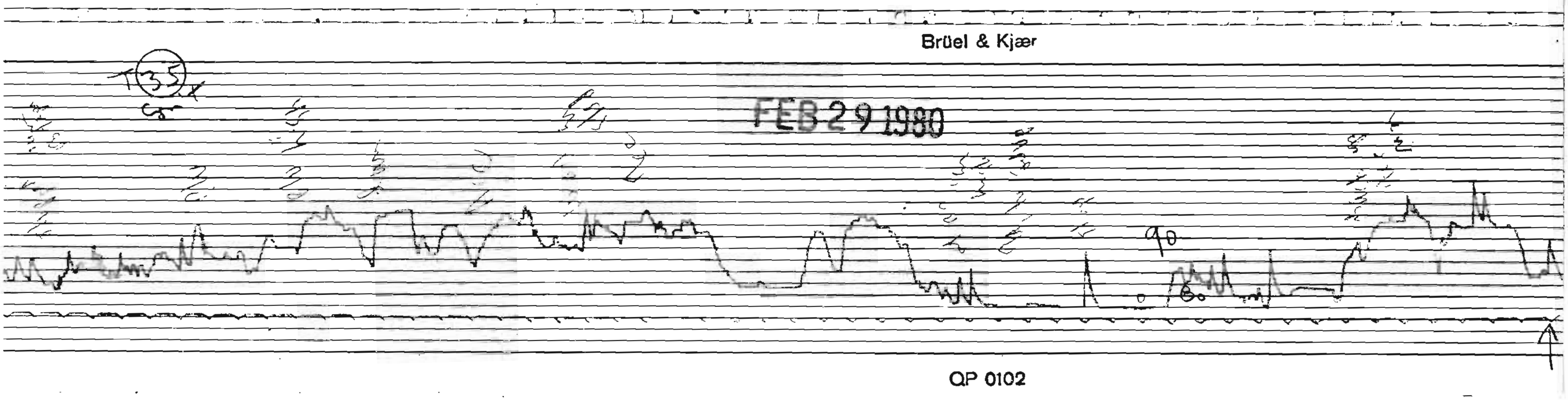
FEB 29 1980

TASK ㉟, Op. P15/16 Planer mill (Outfeed lift cycle)

2/29/80 Lee 1mm/sec

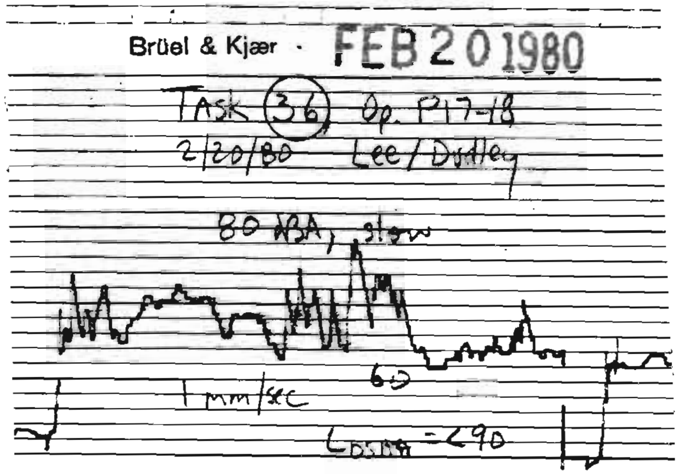
80 dBA, slow

L_{OSHA} = <90 ((90)) = 86.6 ((85))

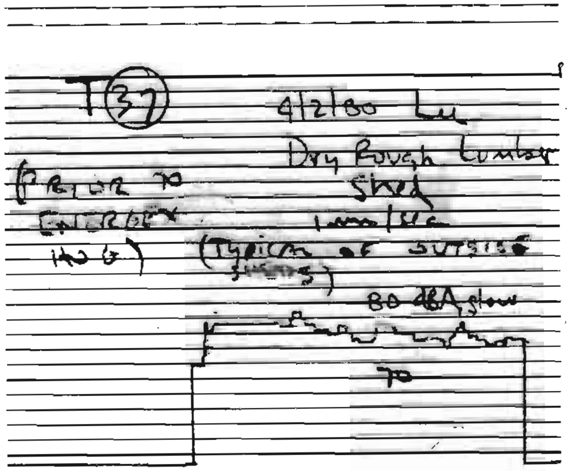


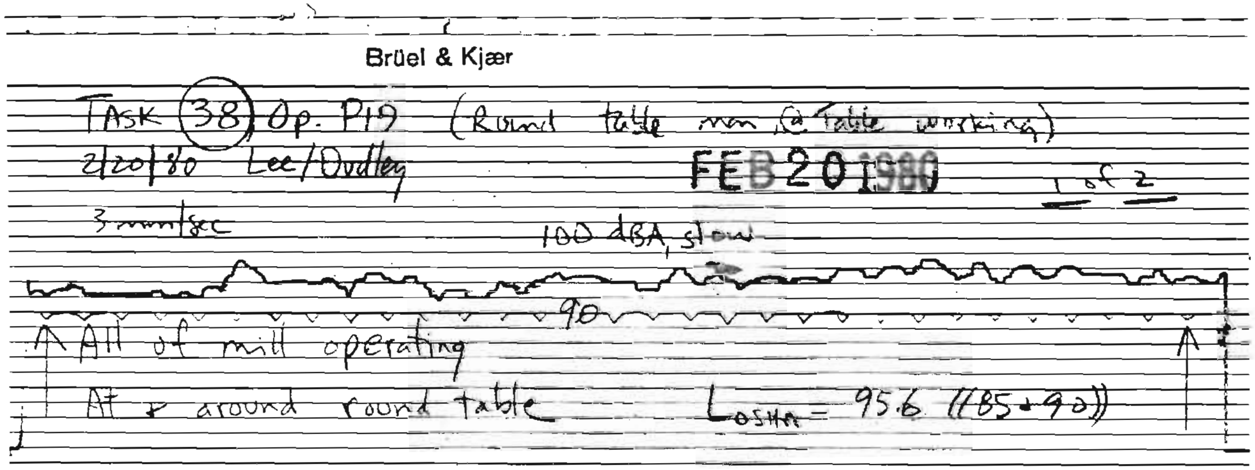
T㉟

FEB 29 1980

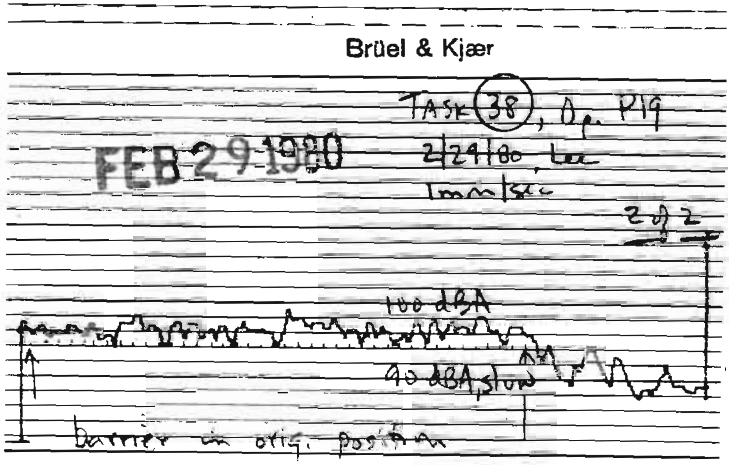


QP 0102

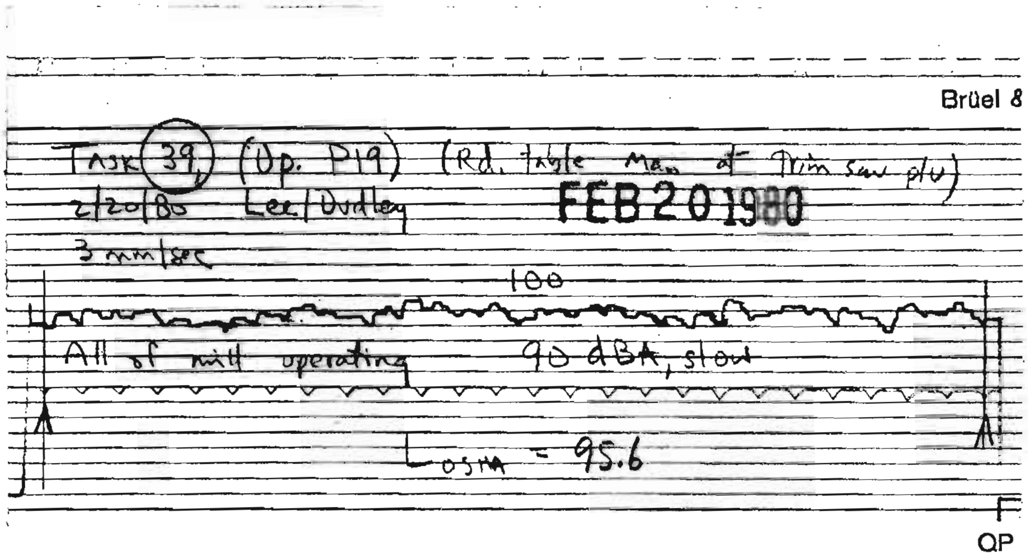




QP 0102

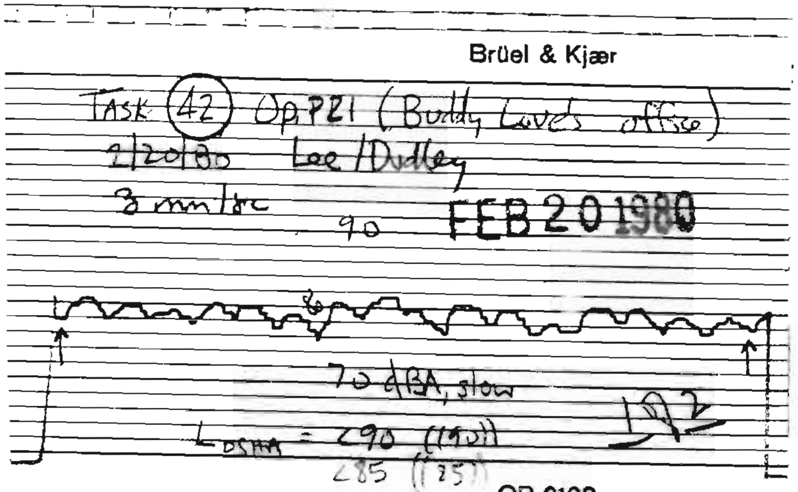


QP 0102



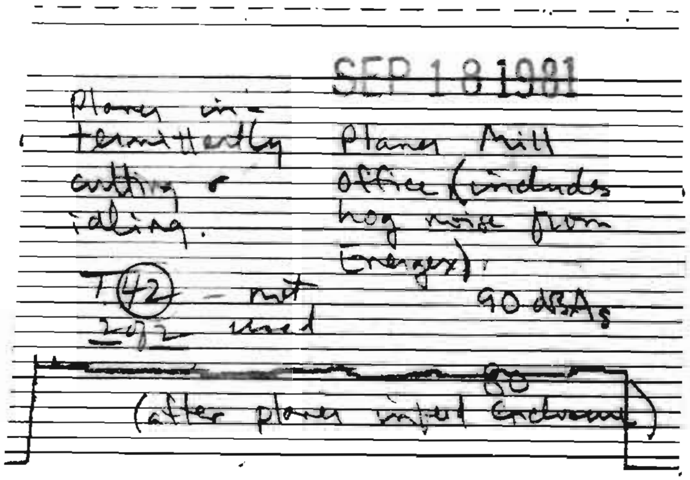
Task ③⑨, (Op. P19) (Rd. table Man at Trim saw plv)
2/20/80 Lee/Dudley
FEB 20 1980
3 mm/sec
All of mill operating 90 dBA, slow
L_{OSHA} = 95.6

Tape for Task 41 "Round Table Man, P19, Idle and Cleanup" was misplaced.



TASK ⑷② Op. P21 (Buddy Love's office)
2/20/80 Lee / Dudley
3 mm/sec
FEB 20 1980

L_{OSHA} = <90 (1901)
<85 (1251)



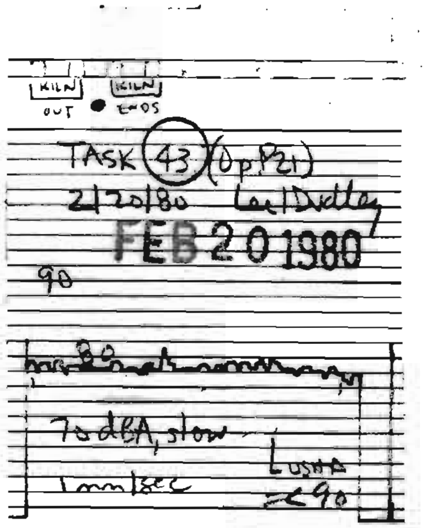
SEP 18 1981

Planer intermittently cutting or idling.

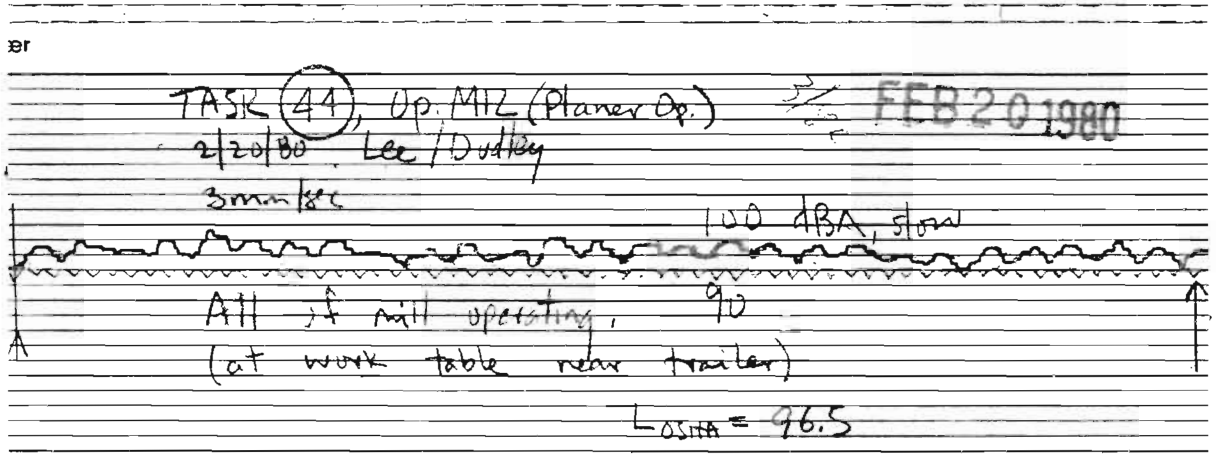
T(42) – not 2/92 used

Planer Mill office (includes hog noise from Energex).

(after planer infeed Enclosure)



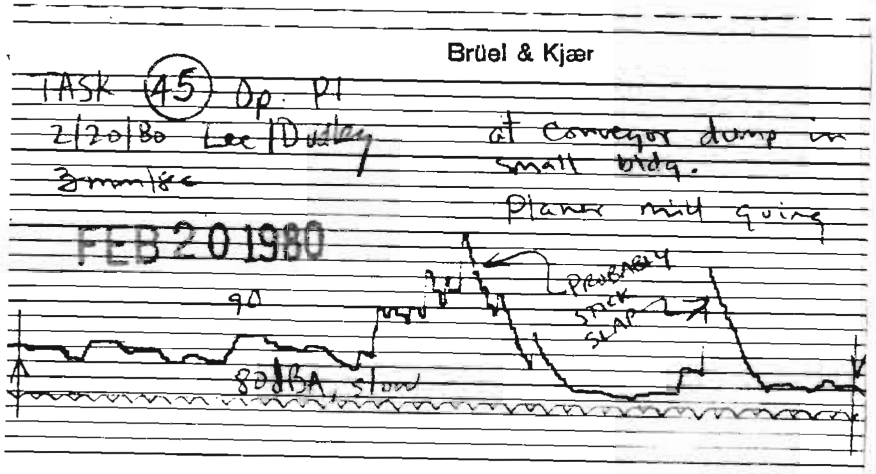
TASK (43) (Op. P21)
2/20/80 Lee/Dudley
FEB 20 1980
1 mm/sec
L_{OSHA} <90



TASK (44), Op. M12 (Planer Op.)
2/20/80 Lee / Dudley
3 mm/sec
FEB 20 1980

All of mill operating, (at work table near trailer)

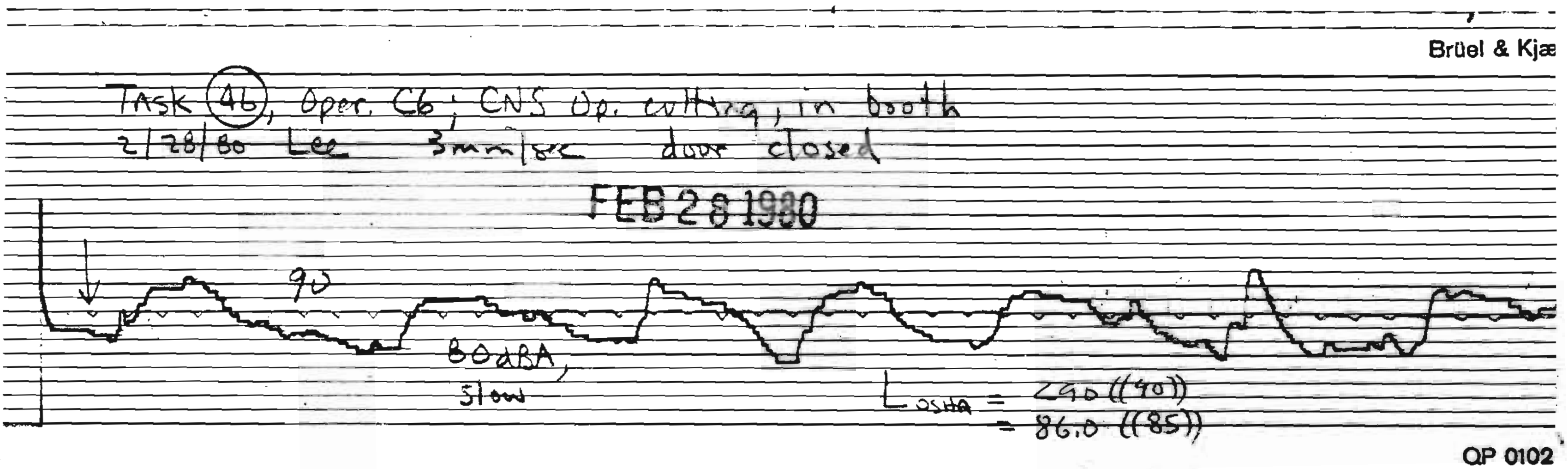
L_{OSHA} = 96.5



TASK (45) Op. P1
2/20/80 Lee / Dudley
3 mm/sec
FEB 20 1980

at conveyor dump in small bldg.

Planer mill going

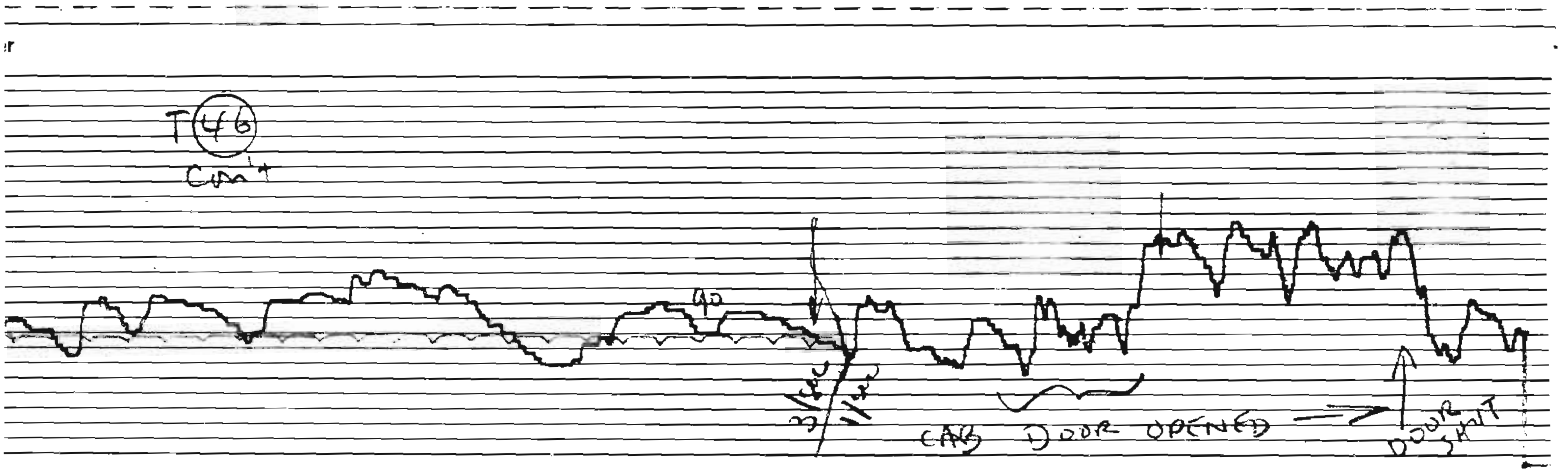


TASK ㊻, Oper. C6; CNS Op. cutting, in booth
2/28/80 Lee 3mm/sec door closed

FEB 28 1980

80dBA, slow

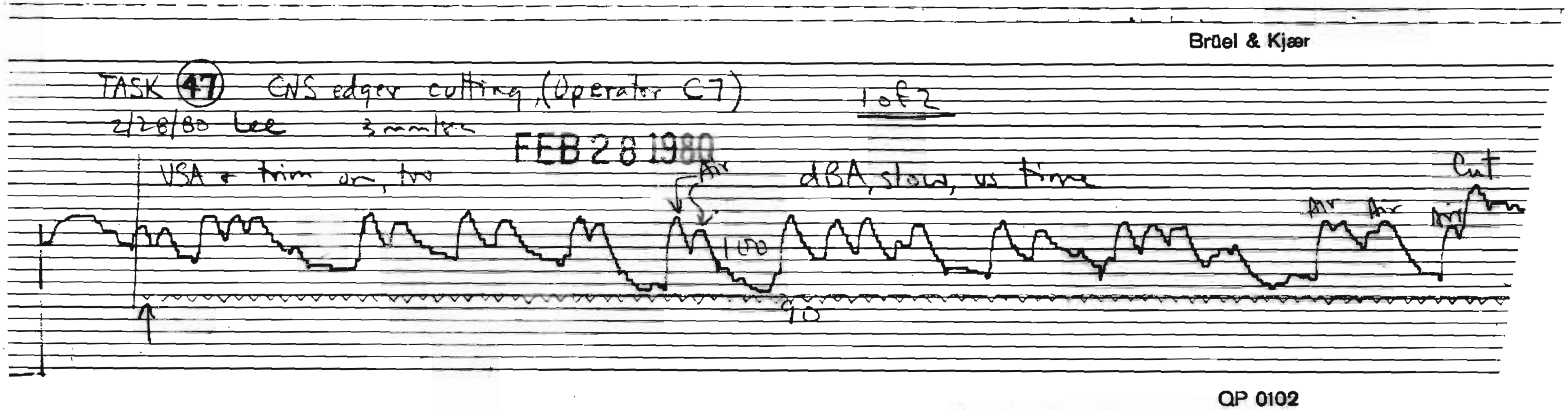
L_{OSHA} = <90 ((90))
= 86.0 ((85))



T㊻ Con't

CAB DOOR OPENED →

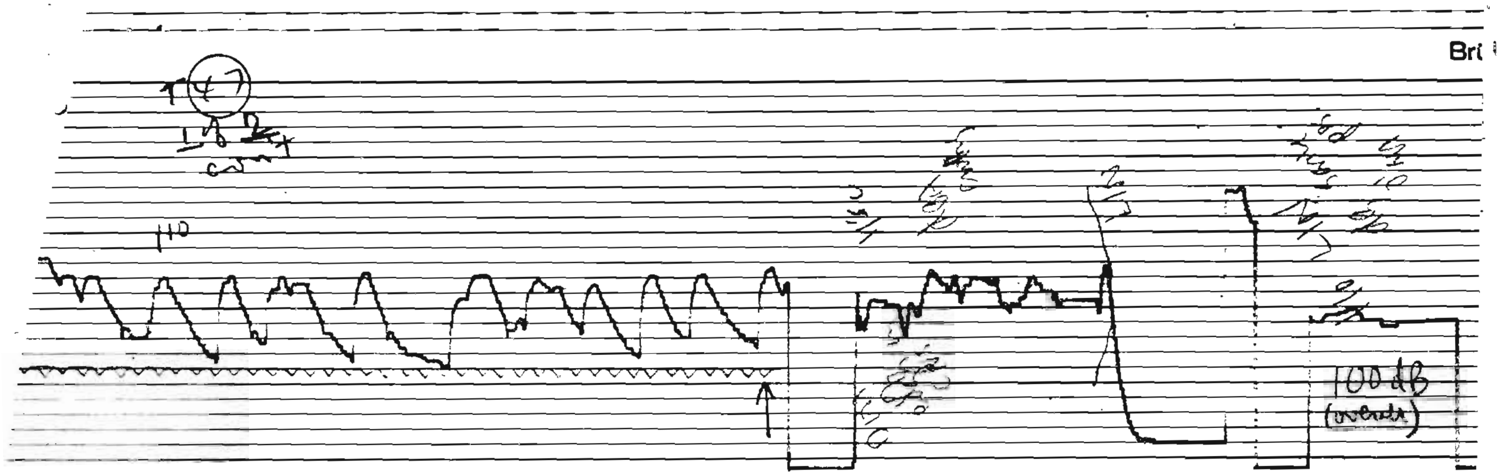
DOOR SHUT

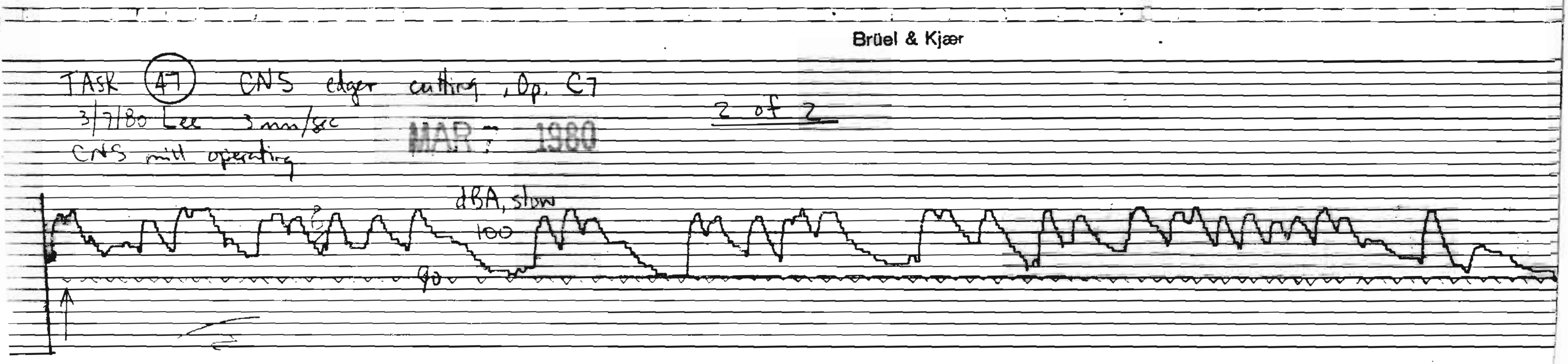

TASK (47) CNS edger cutting, (Operator C7)

2/28/80 Lee 3 meter

1 of 2

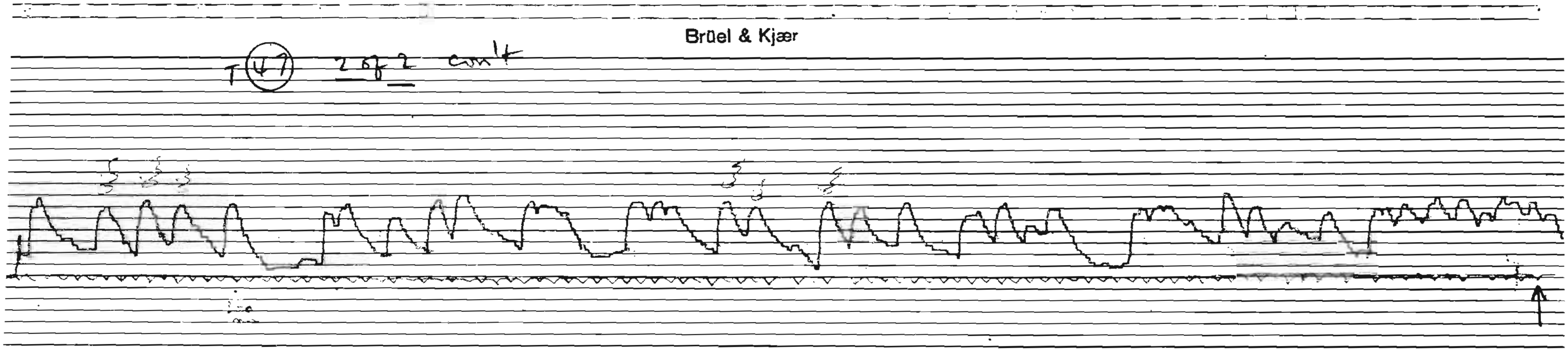
FEB 28 1980

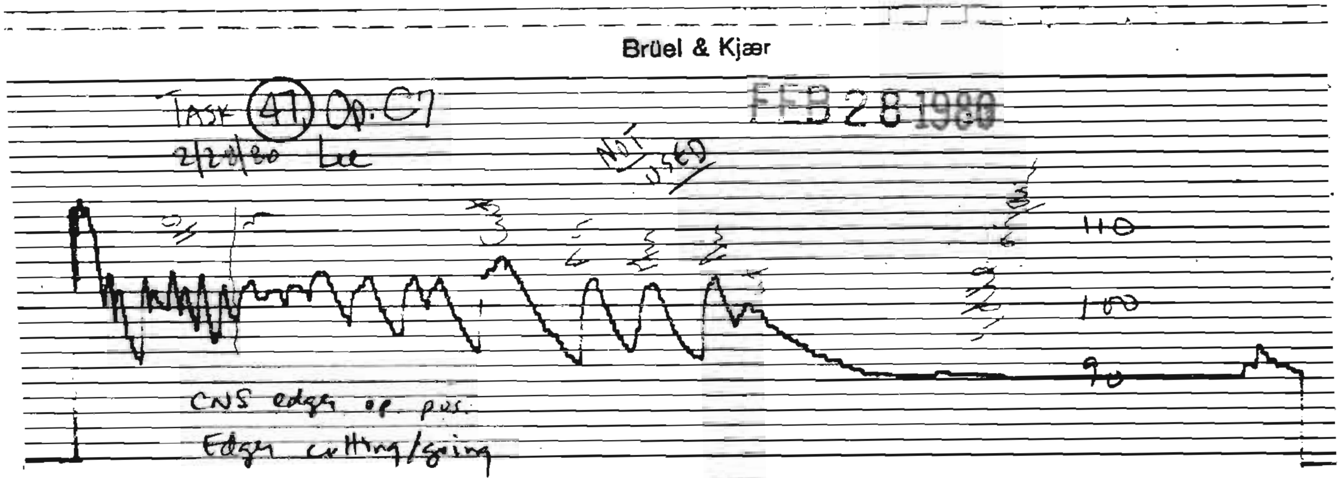

T (47)

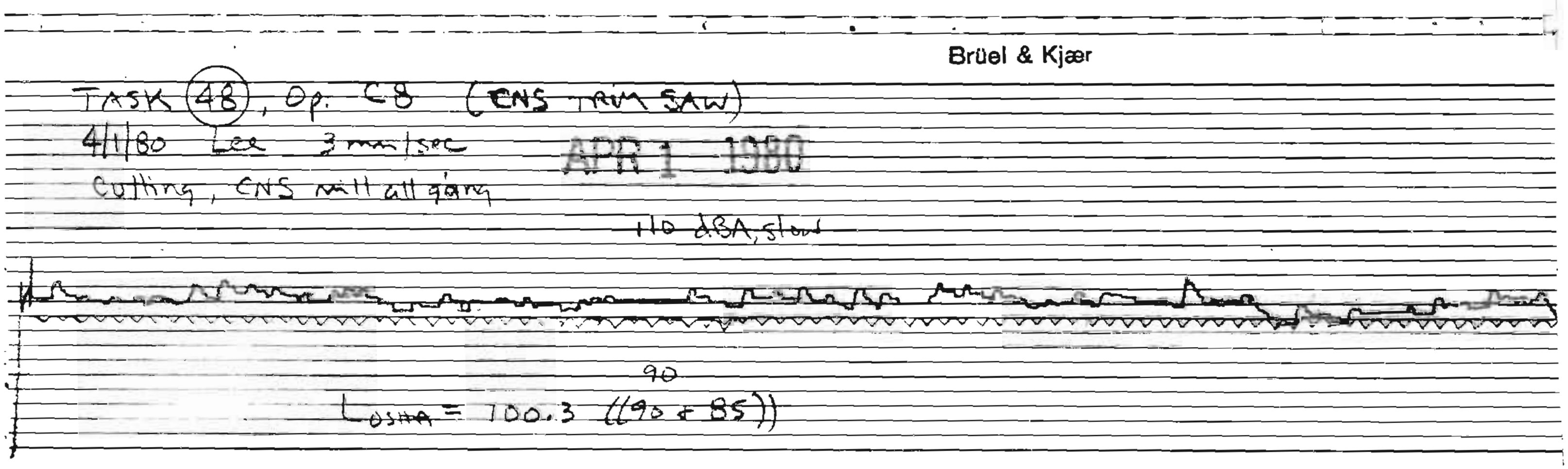

TASK ㊼ CNS edger cutting, Op. C7
3/7/80 Lee 3 mm/sec
CNS mill operating

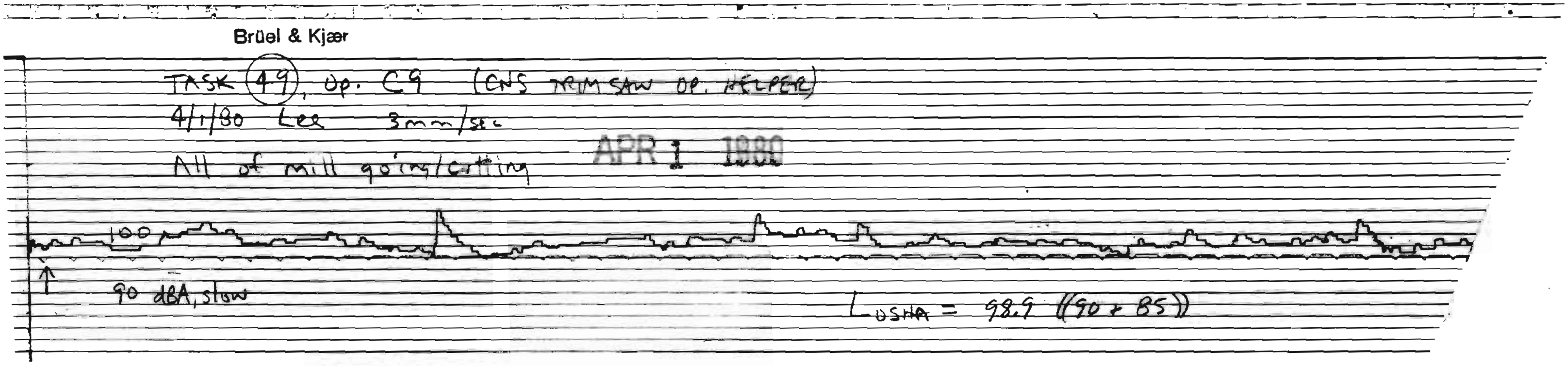
MAR 7 1980

2 of 2


T ㊼ 2 of 2 con't


Brüel & Kjær
TASK ㊼ Op. C7
2/20/80 Lee
FEB 28 1980
NOT USED
110
100
90
CNS edger op pos.
Edger cutting/going
QP 0102

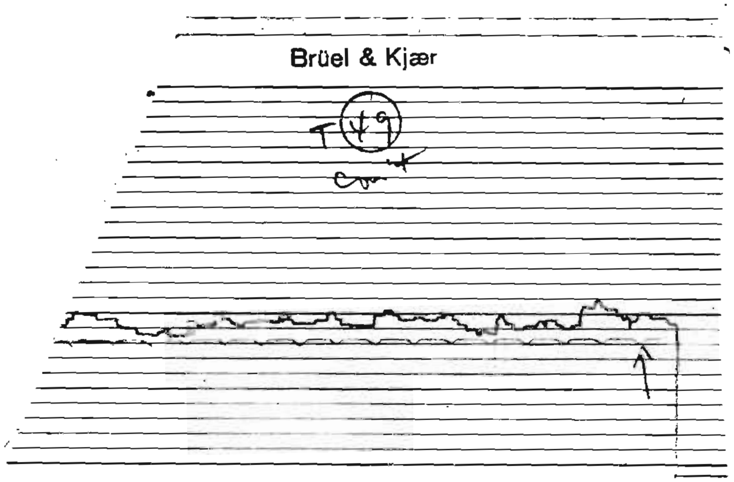

Brüel & Kjær
TASK ㊽, Op. C8 (CNS TRIM SAW)
4/1/80 Lee 3 mm/sec
APR 1 1980
Cutting, CNS mill all going
110 dBA, slow
90
L_OSHA = 100.3 ((90 + 85))
QP 0102



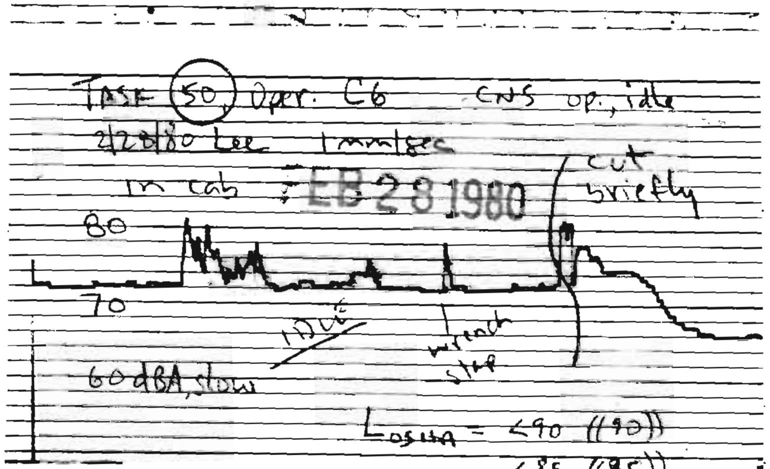
TASK ㊾, Op. C9 (CNS TRIM SAW OP. HELPER)
4/1/80 Lee 3mm/sec
All of mill going/cutting

↑ 90 dBA, slow

L_{OSHA} = 98.9 ((90 + 85))



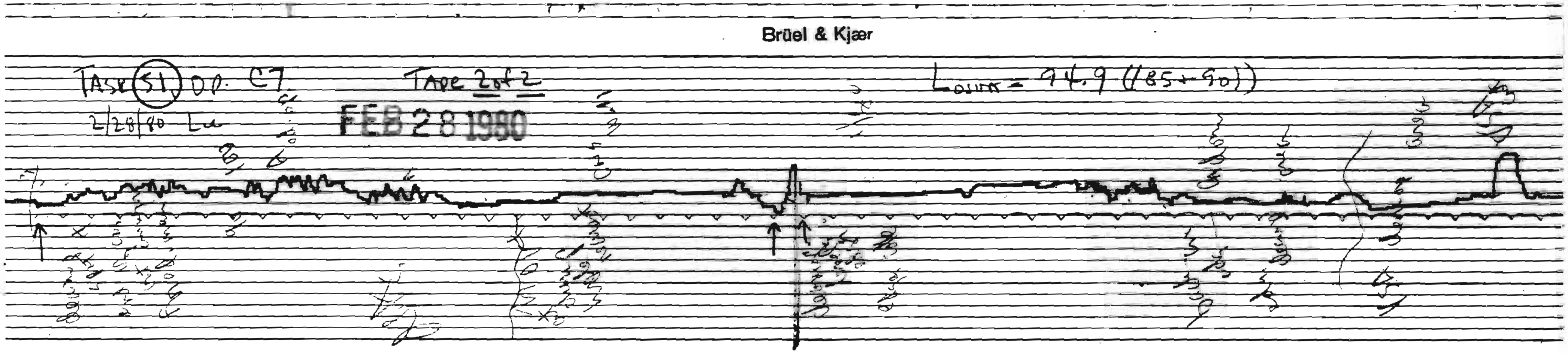
T ㊾
count



TASK ㊿, Oper. C6 CNS op., idle
2/28/80 Lee 1mm/sec
in cab

60 dBA, slow

L_{OSHA} = <90 ((90))
<85 ((85))



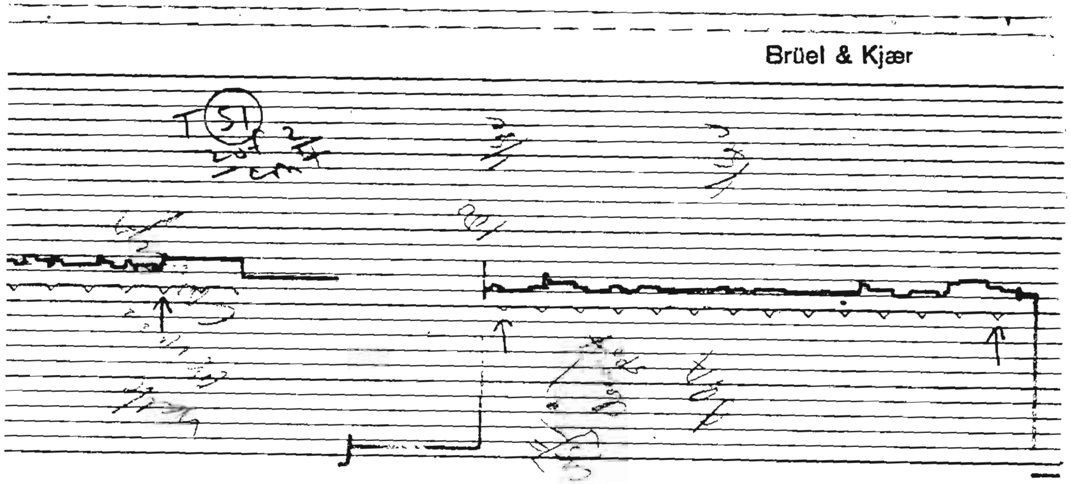
TASK (51), OP. C7

2/28/80 Lee

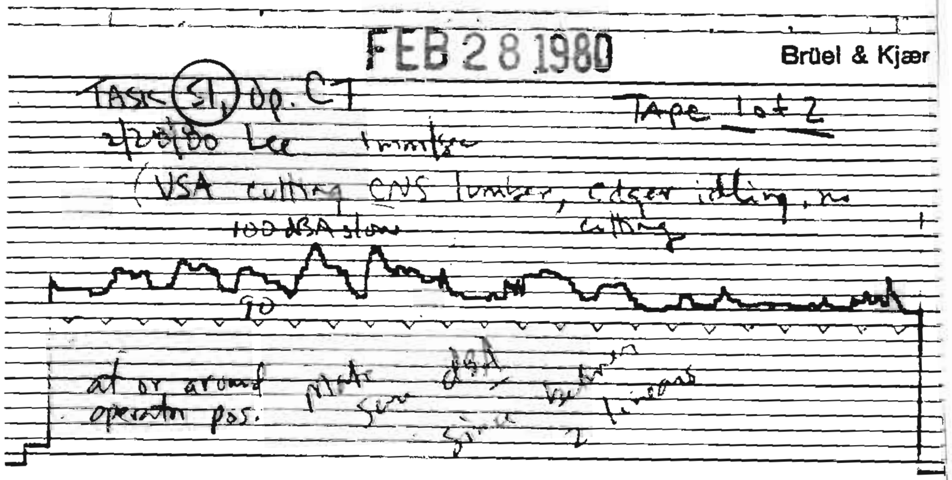
TAPE 2 of 2

FEB 28 1980

L_{osha} = 94.9 ((85 + 90))



T (51) 2 of 2



FEB 28 1980

TASK (51), Op. C7

2/28/80 Lee

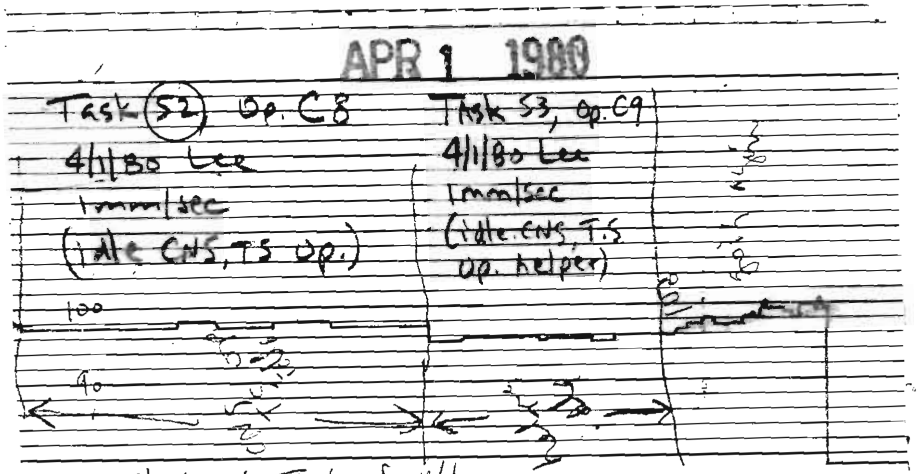
Tape 1 of 2

(VSA cutting CNS lumber, edger idling, no cutting

100 dBA slow

90

at or around operator pos.

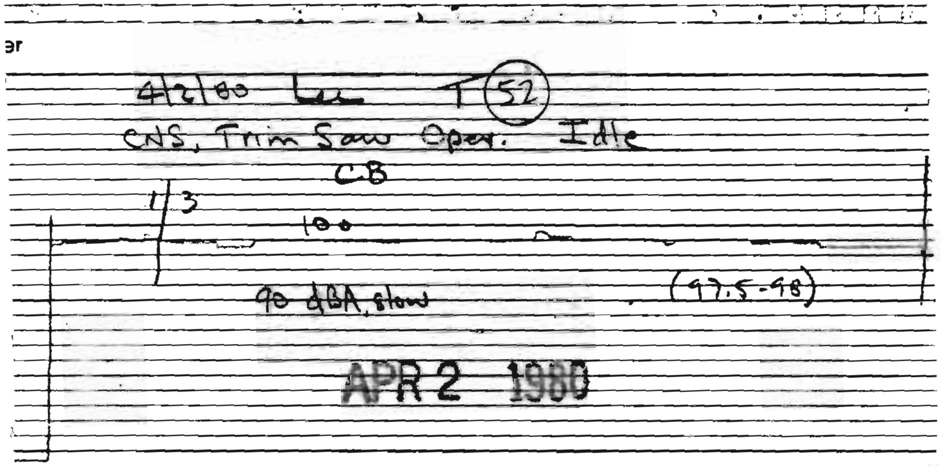


APR 1 1980

Task (52) Op. C8
4/1/80 Lee
1mm/sec
(idle CNS, TS Op.)

Task 53, op. C9
4/1/80 Lee
1mm/sec
(idle CNS, T.S op. helper)

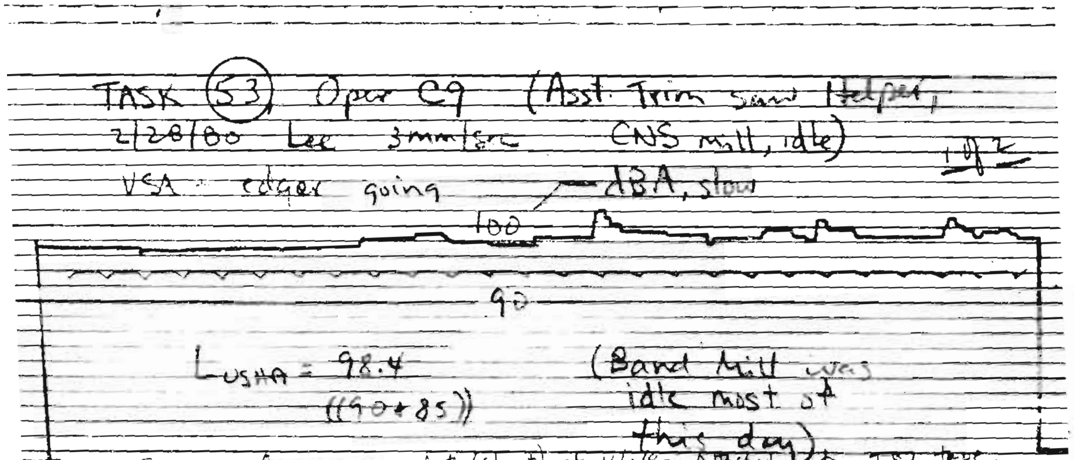
← Hooks to T 48 of 4/1/80



4/2/80 Lee T (52)
CNS, Trim Saw Oper. Idle
C8

(97.5-98)

APR 2 1980

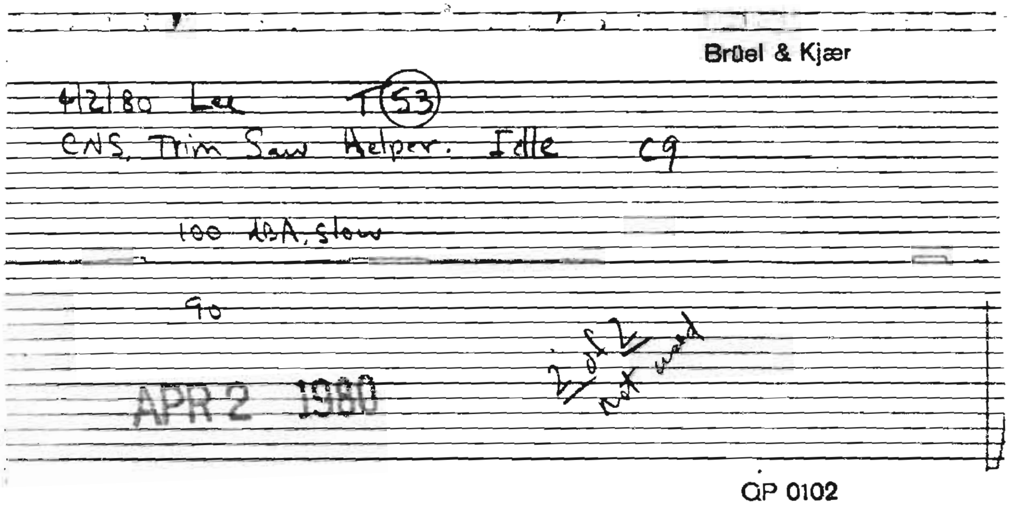


TASK (53) Oper C9 (Asst. Trim saw Helper, CNS mill, idle)
2/28/80 Lee 3mm/sec
1 of 2
VSA - edger going

L_{OSHA} = 98.4
((90+85))

(Band Mill was idle most of this day)

See supplementary data (short) of 4/1/80. Attached to T52 tape.



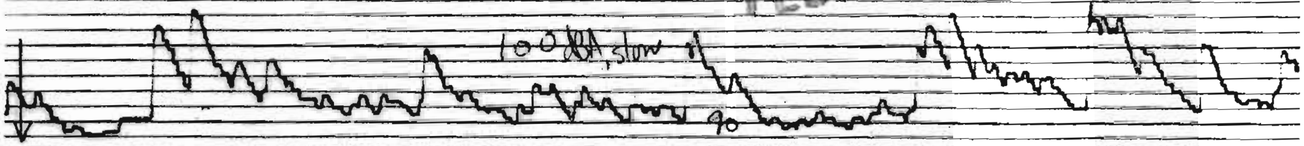
4/2/80 Lee T (53)
CNS, Trim Saw Helper. Idle C9

2 of 2 not used

APR 2 1980

TASK (54), Oper. C10 #1 ripple operating
2/28/80 Lee 3 mm/sec

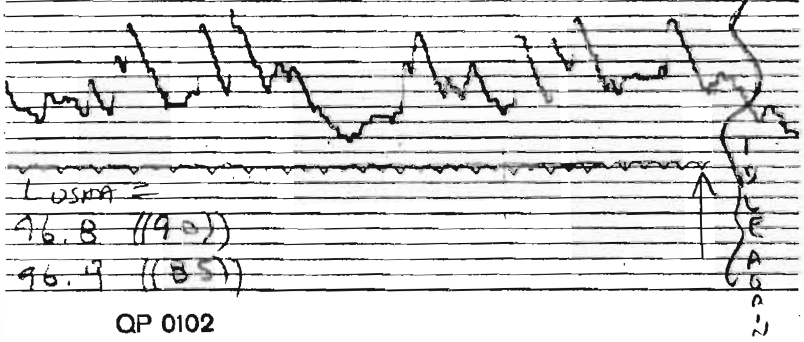
FEB 28 1980



All going now to clear backlog behind
CNS trim saw

80 dBA, slow

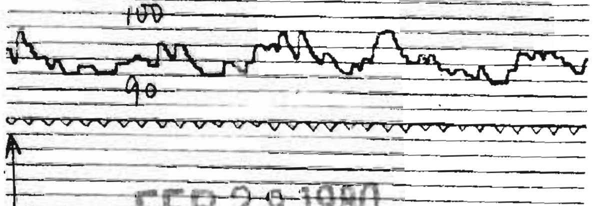
L OSHA =



T(54) Con't

L OSHA =
96.8 ((90))
96.4 ((85))

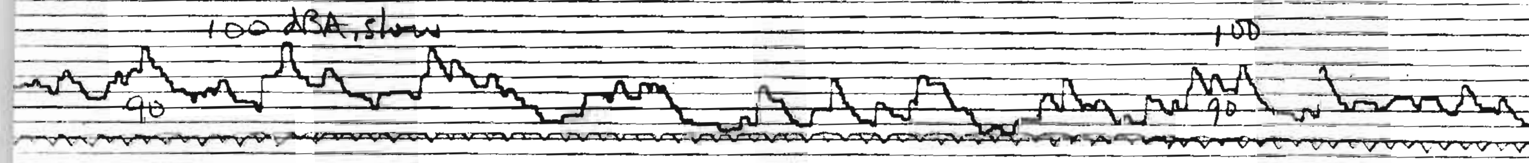
TASK (55), Oper. C11
2/28/80 Lee 3 mm/sec
#2 ripple cont.



FEB 28 1980

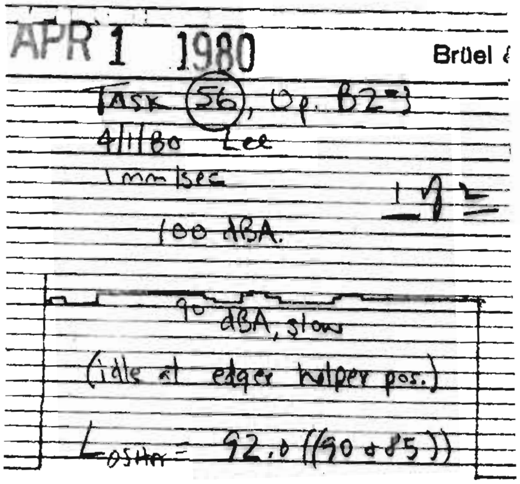
2
pple Controller (after CNS trim, up high)

T(55) con't



L OSHA = 92.1 dBA ((90))
= 92.7 ((85))

C



APR 1 1980

Brüel &

TASK (56), Op. B2-3
4/1/80 Lee
1mm/sec

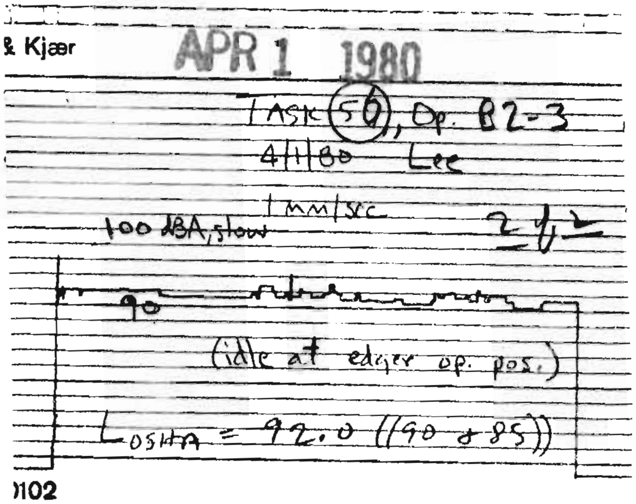
1 of 2

100 dBA.

90 dBA, slow

(idle at edger helper pos.)

L_{OSHA} = 92.0 ((90 & 85))



& Kjær

APR 1 1980

TASK (56), Op. B2-3
4/1/80 Lee
1mm/sec

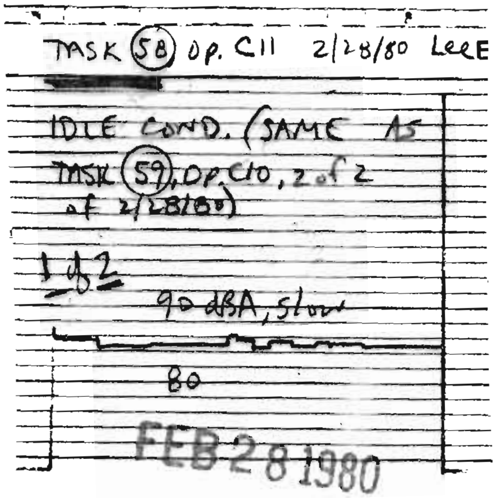
100 dBA, slow

2 of 2

(idle at edger op. pos.)

L_{OSHA} = 92.0 ((90 & 85))

QP (0102



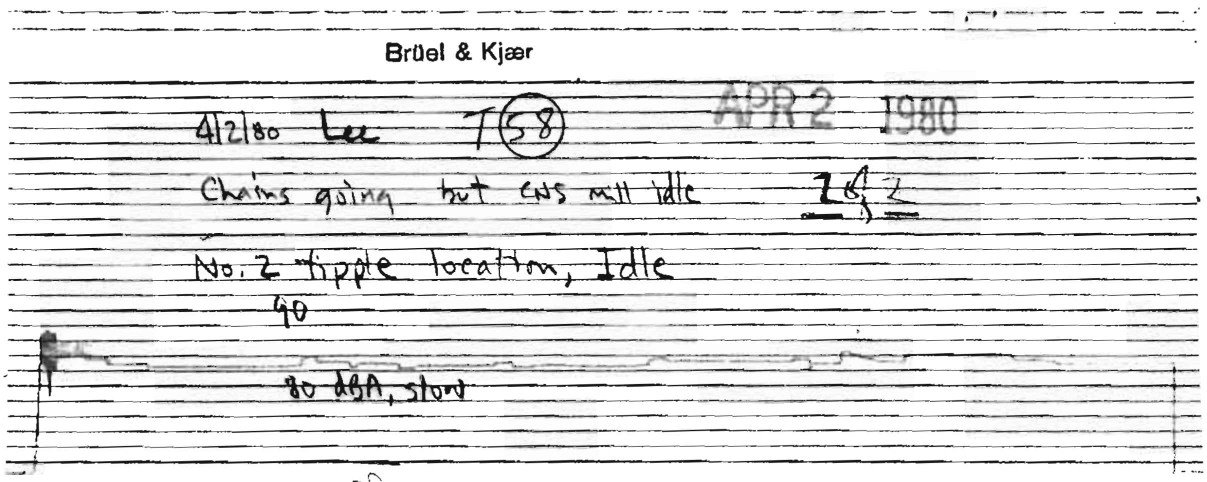
TASK (58) op. C11 2/28/80 Lee

IDLE COND. (SAME AS
TASK (59), OP. C10, 2 of 2
of 2/28/80)

1 of 2

90 dBA, slow

FEB 28 1980



Brüel & Kjær

APR 2 1980

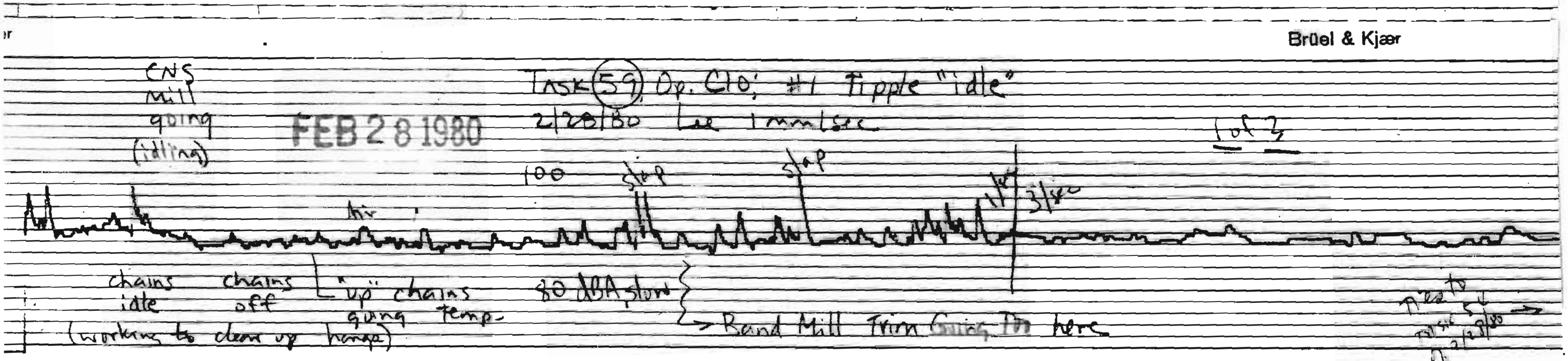
4/2/80 Lee T(58)

Chains going but CNS mill idle 1 of 2

No. 2 tipple location, Idle

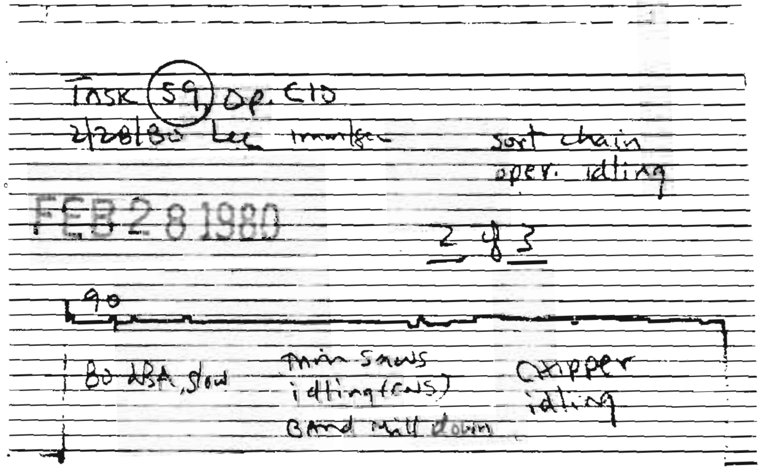
80 dBA, slow

QP 0102


Task (59) Op. C10; #1 Tipple "idle"
2/28/80 Lee 1 mm/sec

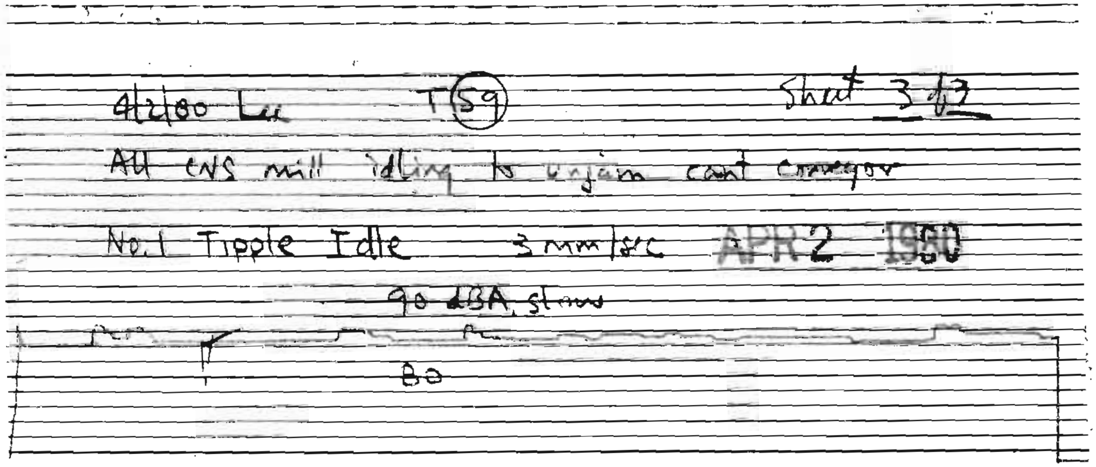
FEB 28 1980

1 of 3

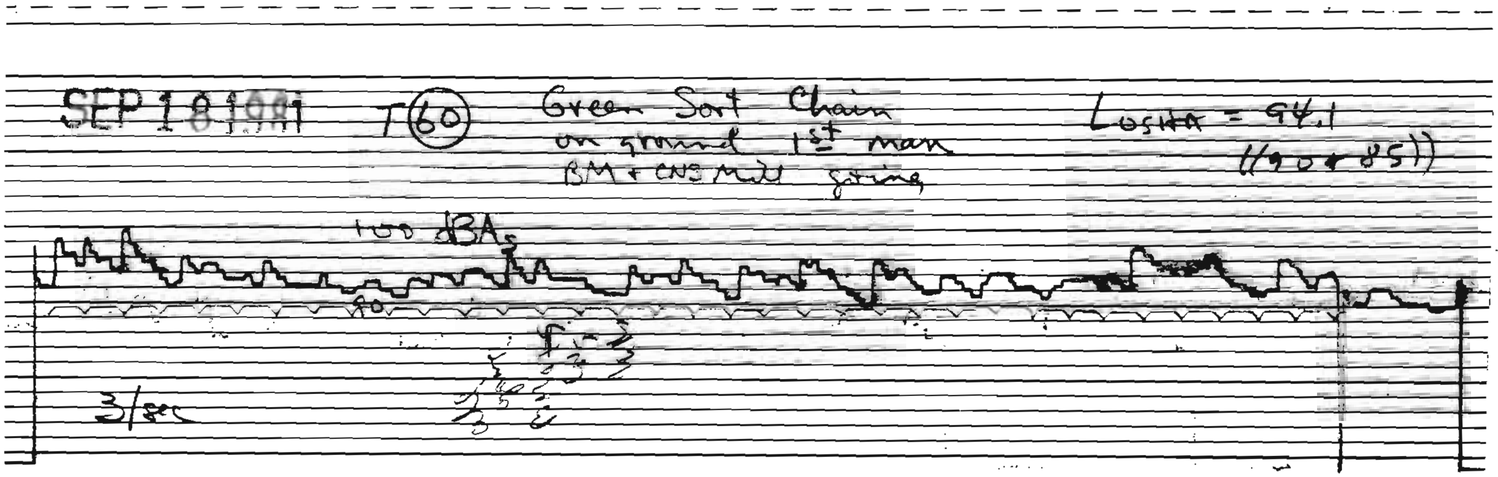

Task (59) Op. C10
2/28/80 Lee 1 mm/sec

FEB 28 1980

2 of 3


4/2/80 Lee T(59)
Sheet 3 of 3
All CNS mill idling to unjam cant conveyor
No. 1 Tipple Idle 3 mm/sec

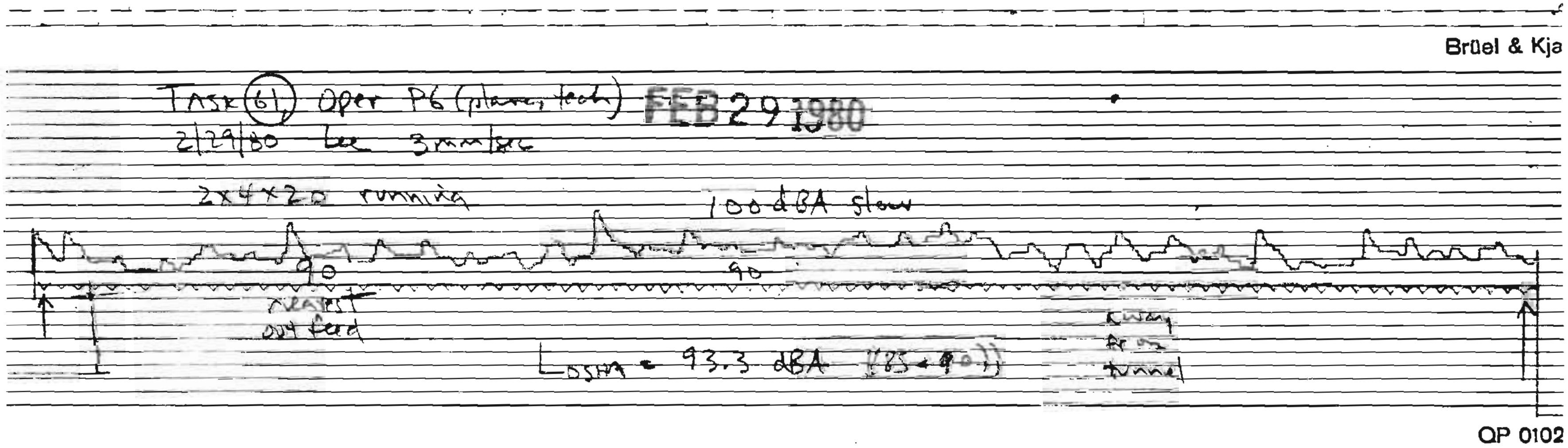
APR 2 1980



SEP 18 1981

T ⑥⓪ Green Sort Chain
on ground 1st man
BM + CNS Mill going

Losha = 94.1
((90 + 85))



Task ⑥① Oper P6 (planer, tech) FEB 29 1980
2/29/80 Lee 3mm/sec

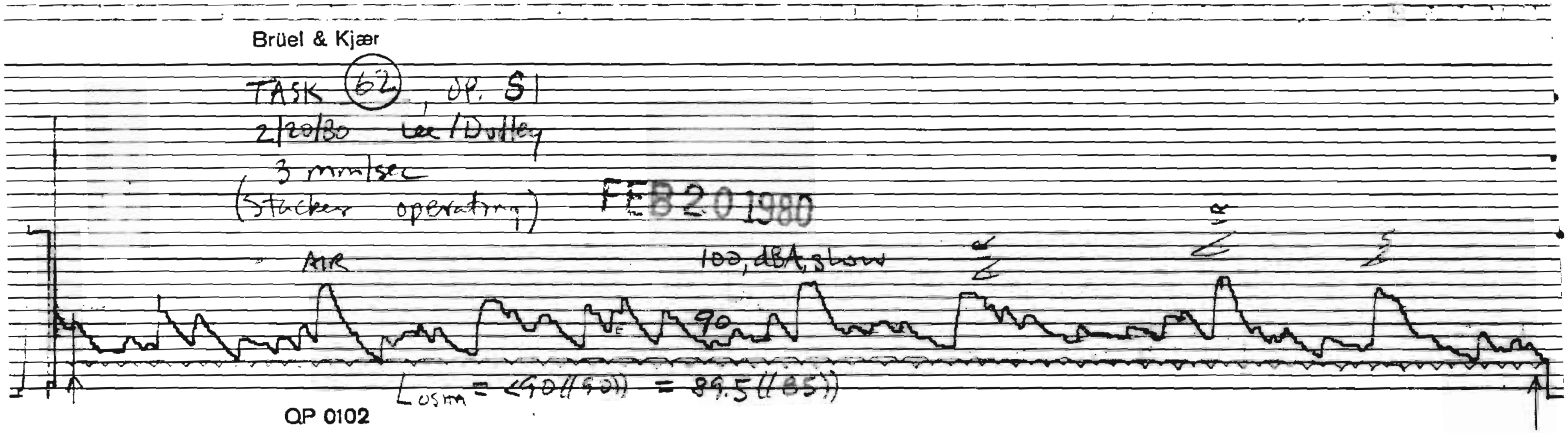
2x4x20 running

nearest out feed

away fr on tunnel

Losha = 93.3 dBA ((85 + 90))

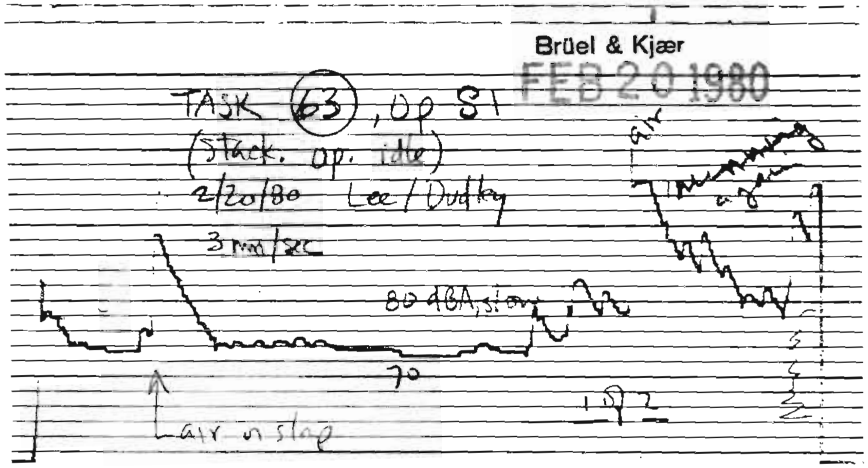
C3



TASK ⓺② , OP. S1
2/20/80 Lee/Dudley
3 mm/sec
(Stacker operating)

FEB 20 1980

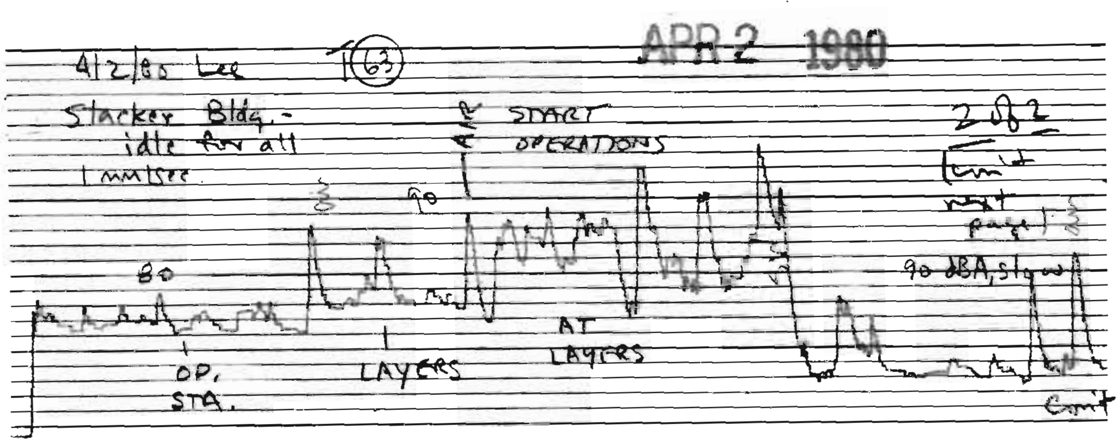
L_{OSHA} = <90 ((90)) = 89.5 ((85))



TASK (63), Op S1
(Stack. op. idle)
2/20/80 Lee/Dudley
3 mm/sec

FEB 20 1980

1 of 2



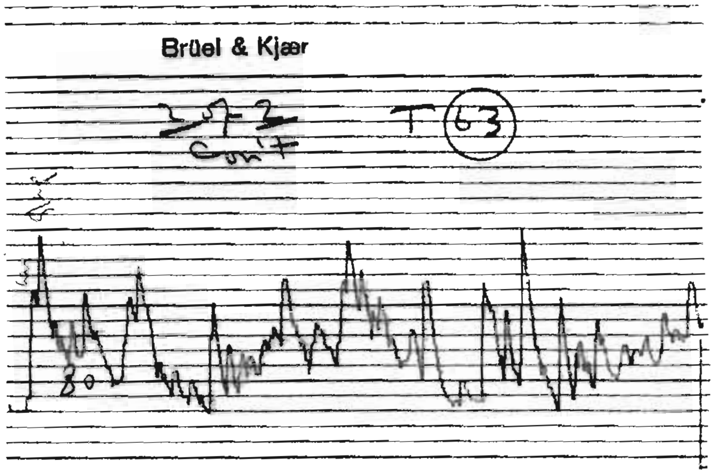
4/2/80 Lee
T(63)

APR 2 1980

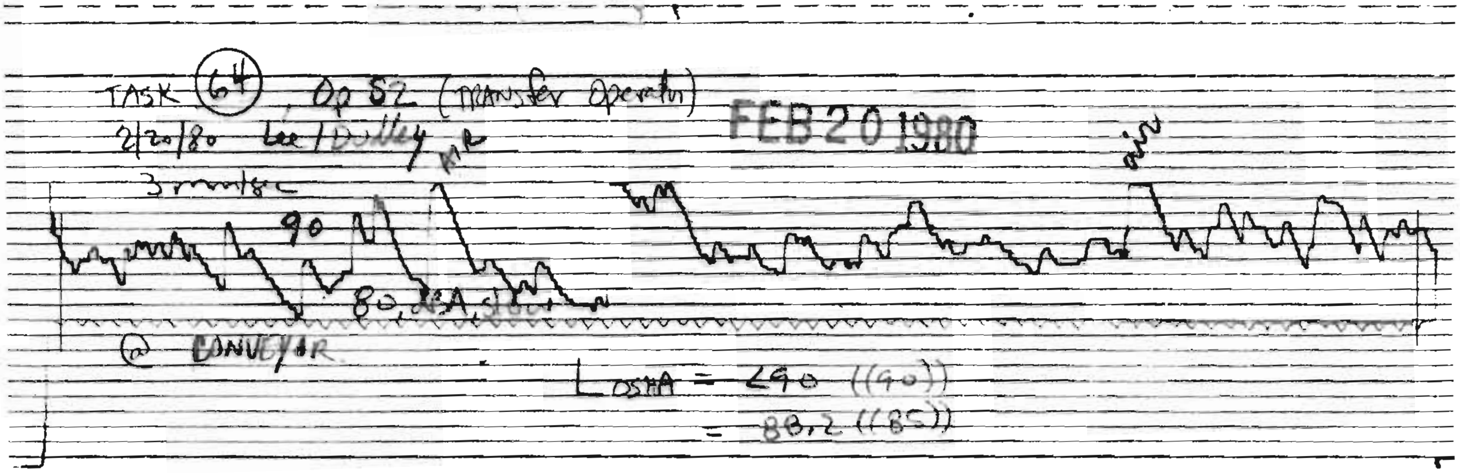
Stacker Bldg. - idle for all
1 mm/sec

START OPERATIONS

2 of 2
(Cont'd next page)
Cont



3-7-2 Con't T 63



TASK 64, Op 52 (transfer operator)

2/20/80 Lee/Dudley

3 mm/sec

FEB 20 1980

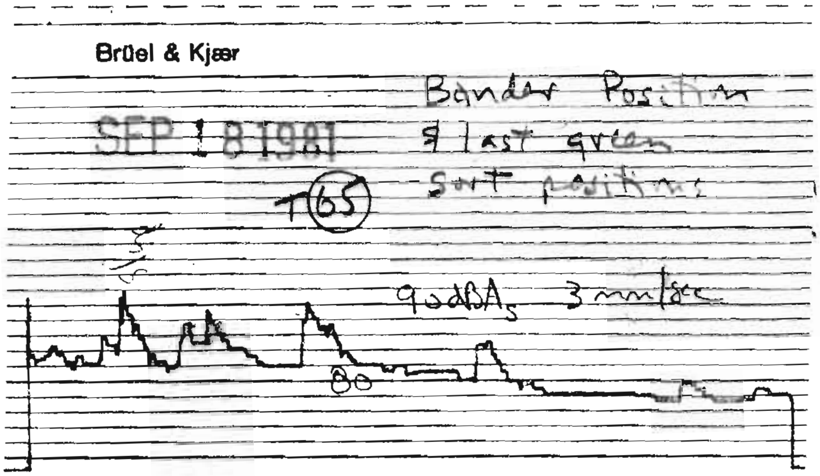
80 dBA slow

@ CONVEYOR

L

L_{OSHA} = <90 ((90))

= 88.2 ((85))

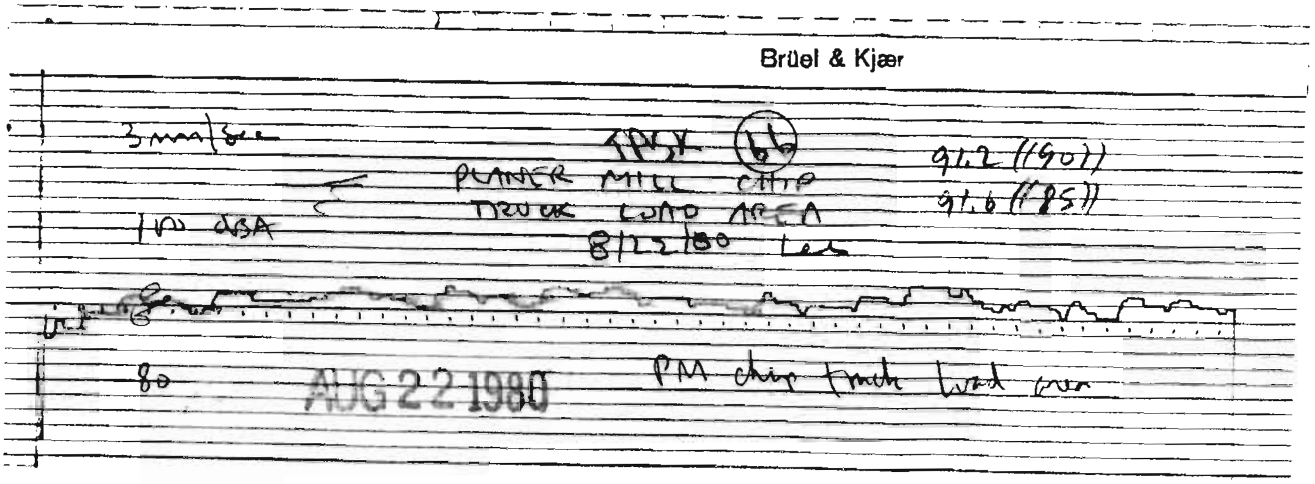


SEP 18 1981

T65

Bander Position & last green sort positions

90 dBA, 3 mm/sec



3 mm/sec

TASK (66)

PLANER MILL CHIP TRUCK LOAD AREA

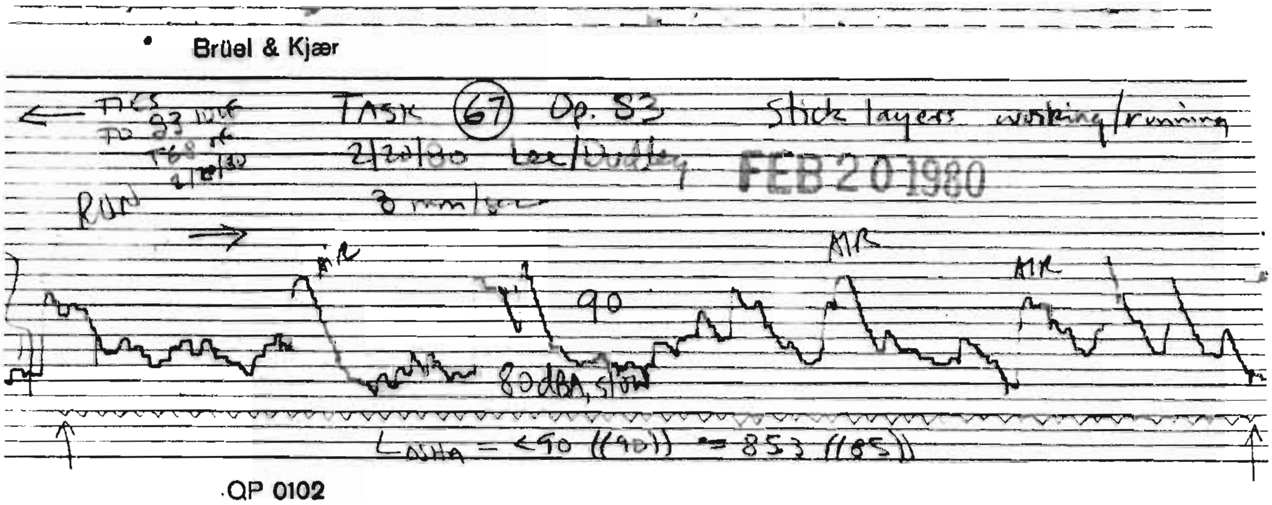
8/22/80 Lee

10 dBA

91.2 ((90))
91.6 ((85))

AUG 22 1980

PM chip truck load over



TASK (67) Op. 83 Stick layers working/running

2/20/80 Lee/Dudley

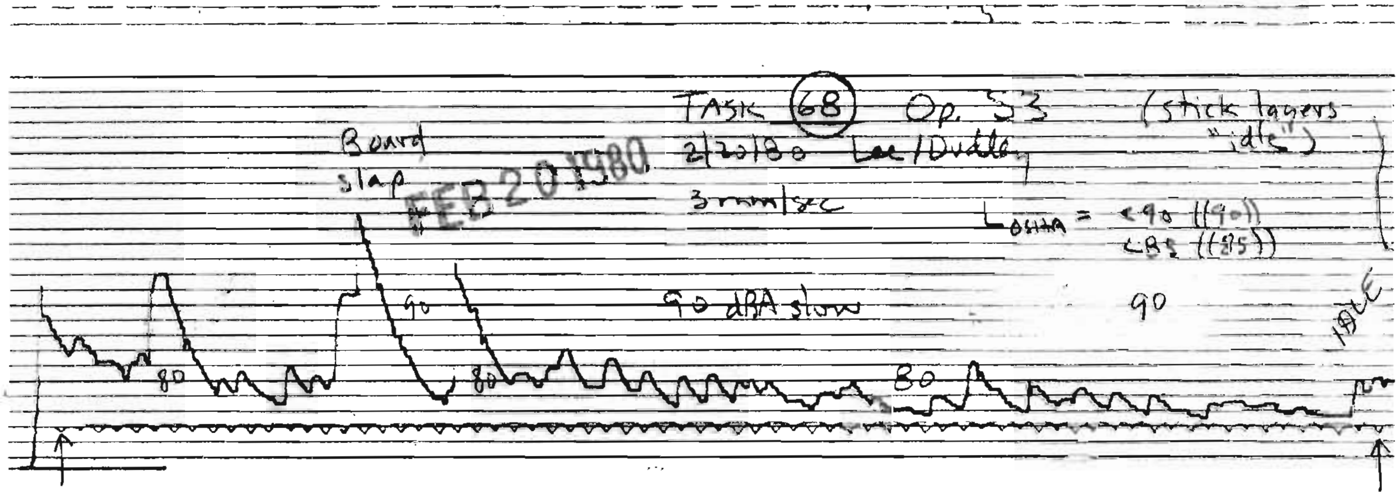
FEB 20 1980

3 mm/sec

← TIES TO 93 ... T68 2/20/80

RUN →

L_{OSHA} = <90 ((90)) = 853 ((85))



TASK (68) Op. 53 (stick layers "idle")

2/20/80 Lee/Dudley

FEB 20 1980

3 mm/sec

L_{OSHA} = <90 ((90))
<85 ((85))

4/2/80 Lee T69 1 of 2

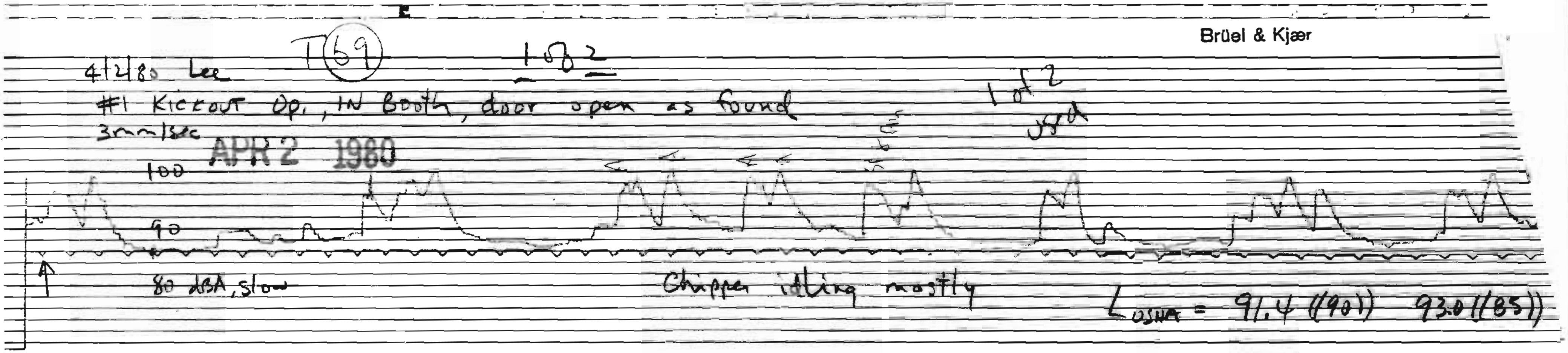
#1 Kickout Op., IN Booth, door open as found

3mm/sec

APR 2 1980

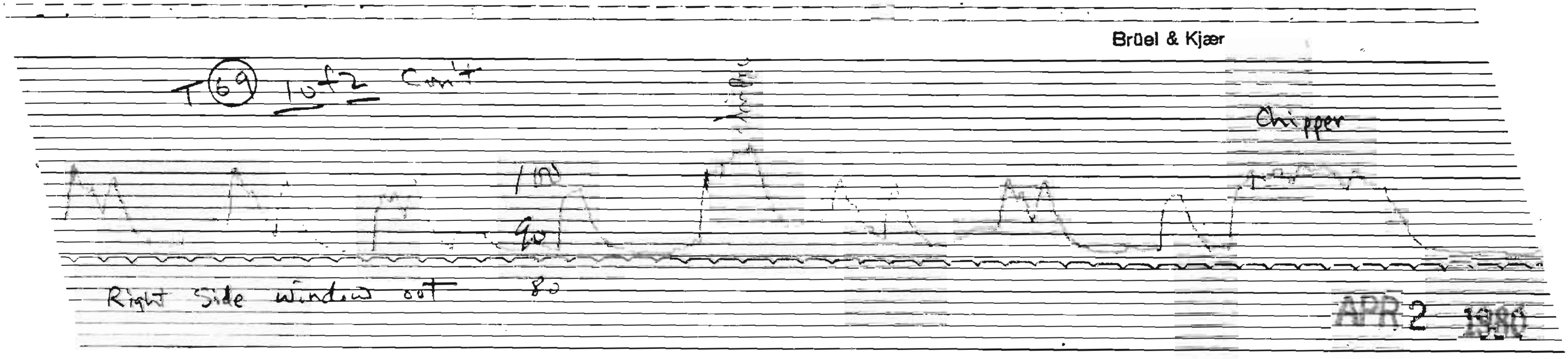
1 of 2

JSH



L_{OSHA} = 91.4 ((90)) 93.0 ((85))

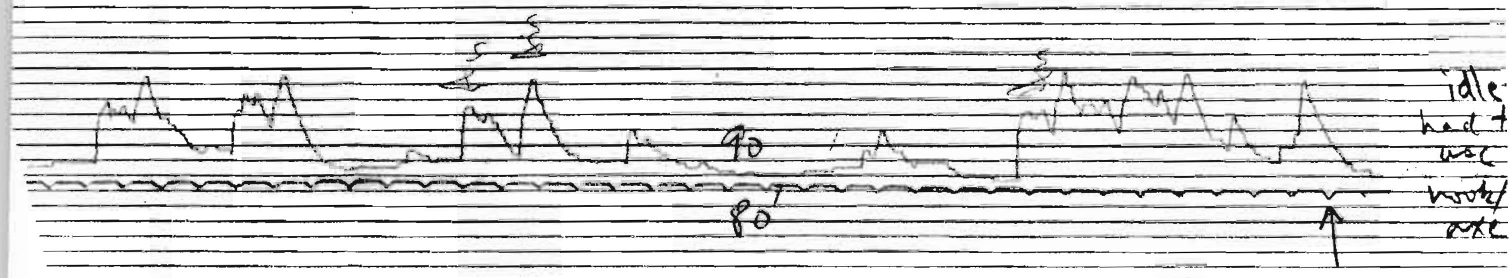
T69 1 of 2 Con't



Right Side window out

APR 2 1980

T 69 1 of 2 Con't from previous page



TASK 69

Op. C4, No. 1 Kickout

2/20/80 Lee/Dudley

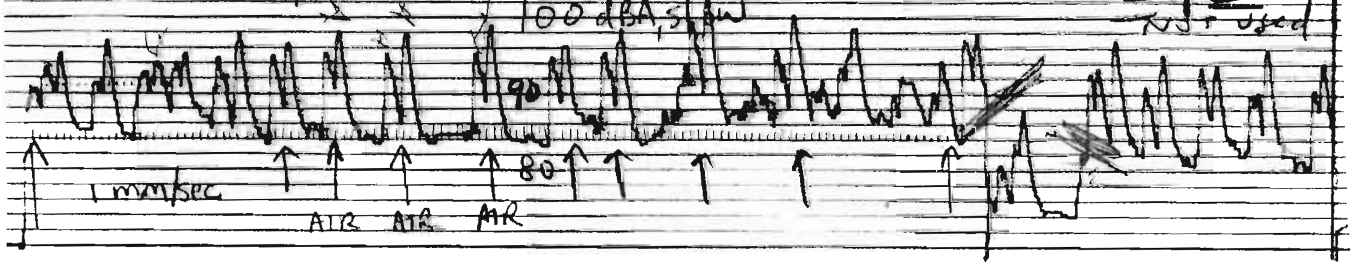
Normal Operation

Note: All DC log this day

FEB 20 1980

2 of 2

not used



Op. C3, TASK 70

No. 1 Slasher

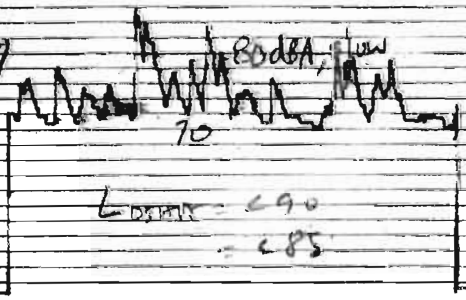
2/20/80 Lee/Dudley

1 mm/sec

Idle

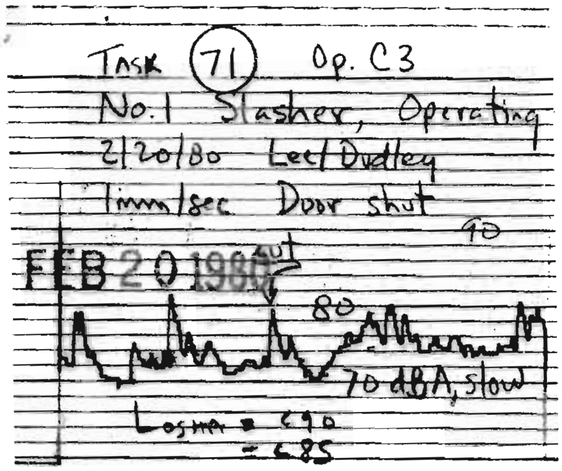
Door shut

FEB 20 1980



L_{OSHA} = <90

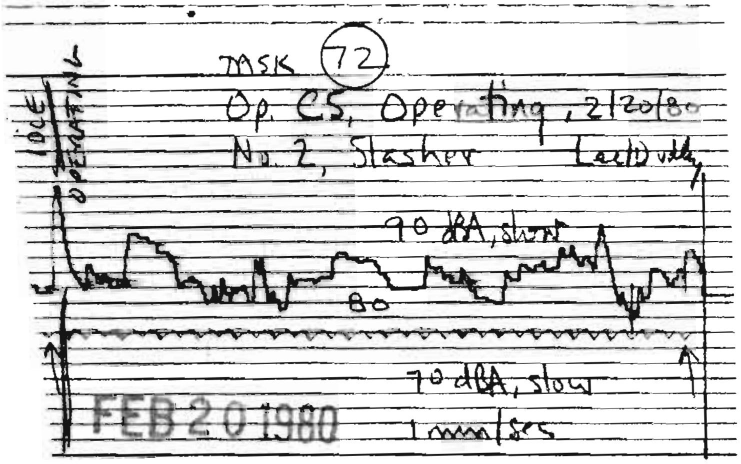
= <85



TASK (71) Op. C3
No. 1 Slasher, Operating
2/20/80 Lee/Dudley
1mm/sec Door shut

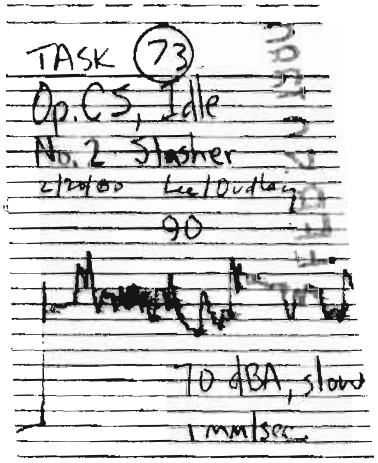
FEB 20 1980

Losha = <90
= <85

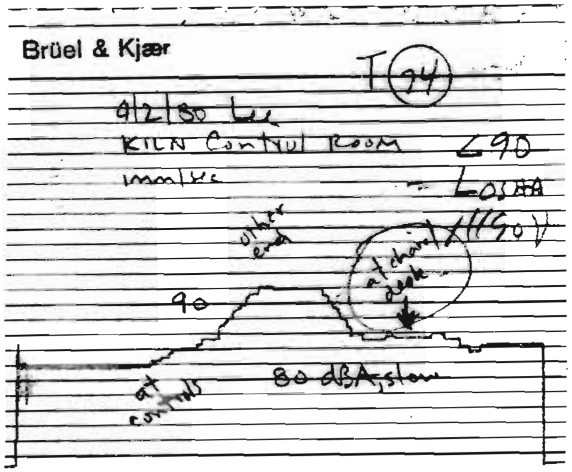


TASK (72)
Op. C5, Operating, 2/20/80
No. 2, Slasher Lee/Dudley

FEB 20 1980

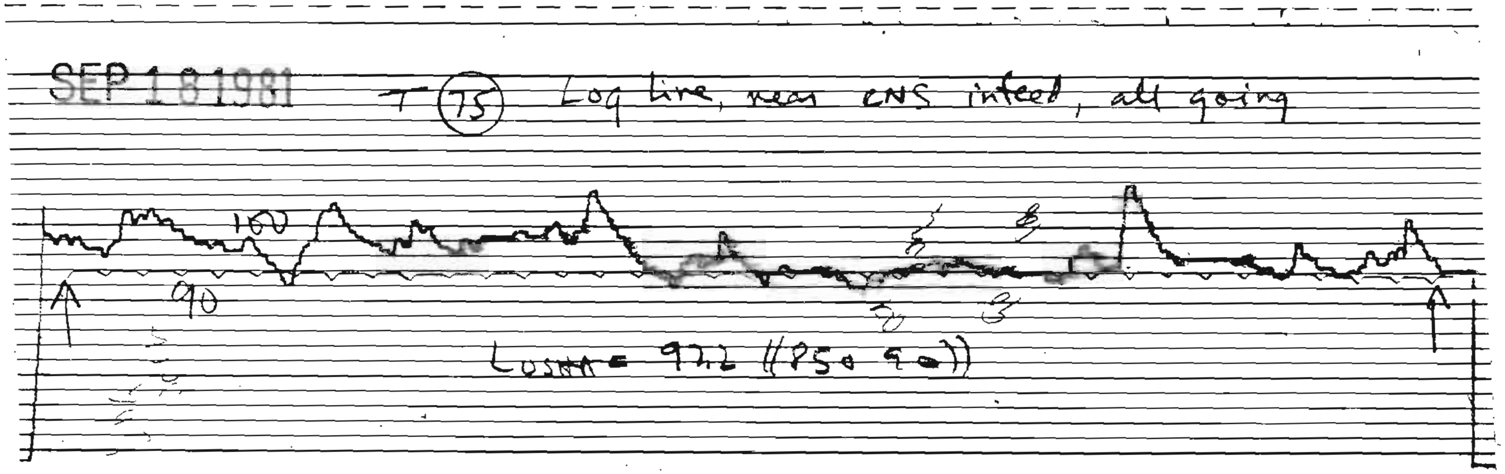


TASK (73)
Op. C5, Idle
No. 2 Slasher
2/20/80 Lee/Dudley



QP 0102

SEP 18 1981

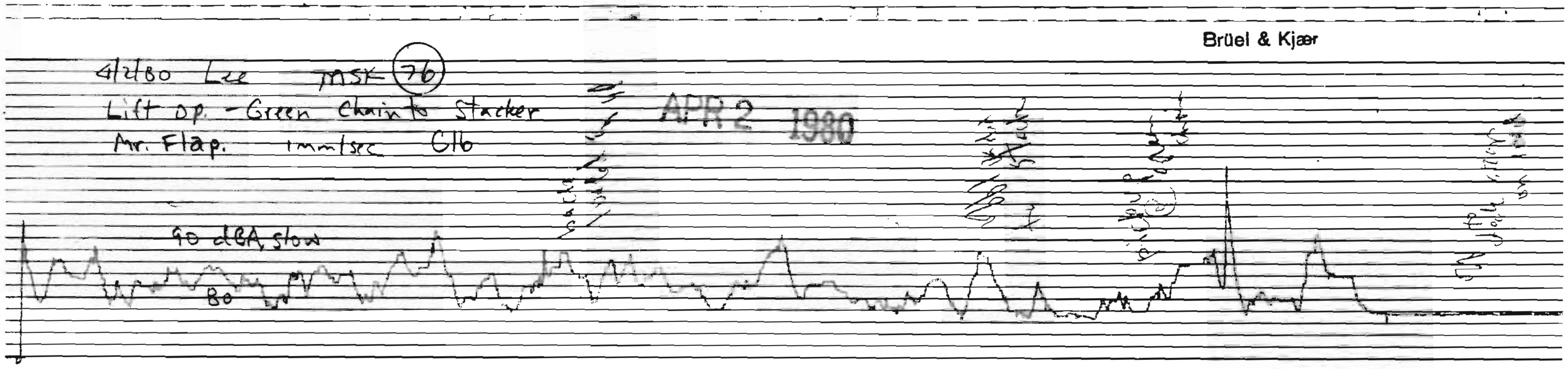


4/2/80 Lee TMSK ⑦⑥

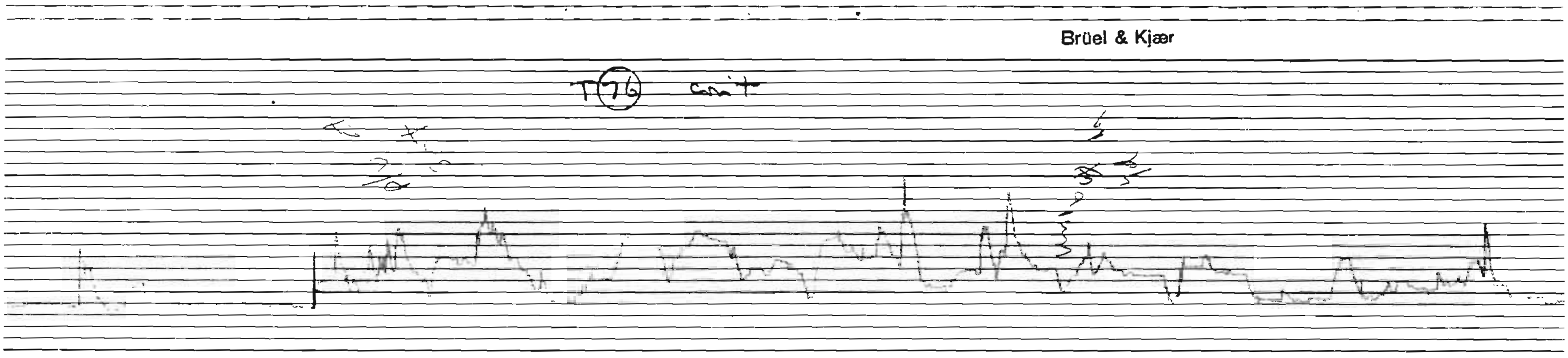
Lift op. - Green Chain to Stacker

Mr. Flap. 1mm/sec C16

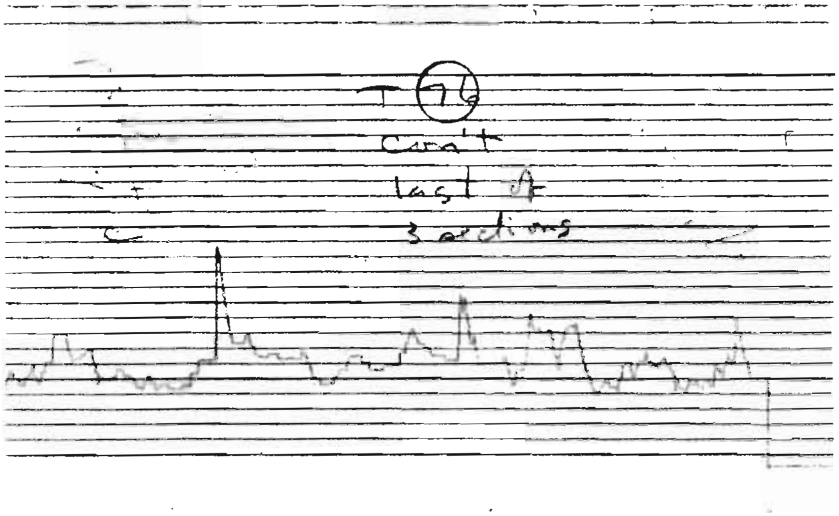
APR 2 1980

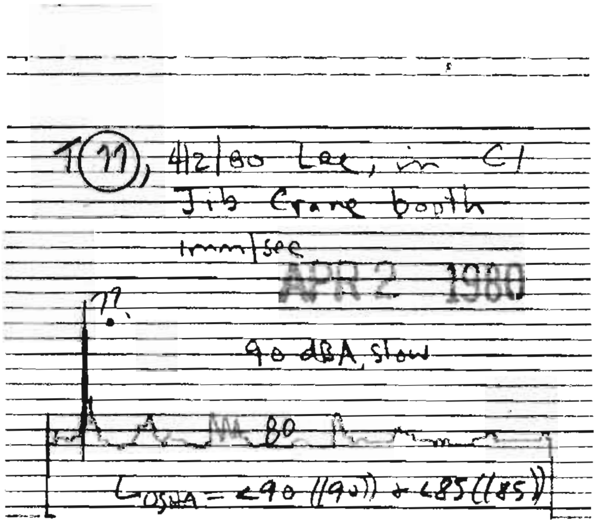


T⑦⑥ con't



C4

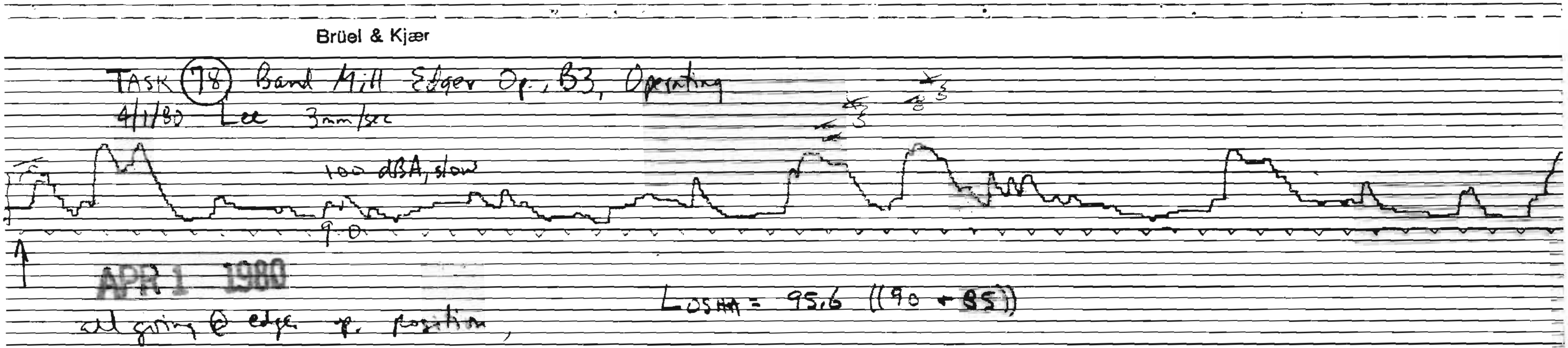

T ⑯
Con't
last of
3 sections


T ⑪, 4/2/80 Lee, in C1
Jib Crane booth
1mm/sec

APR 2 1980

90 dBA, slow

$L_{OSHA} = <90\ ((90)) + <85((85))$

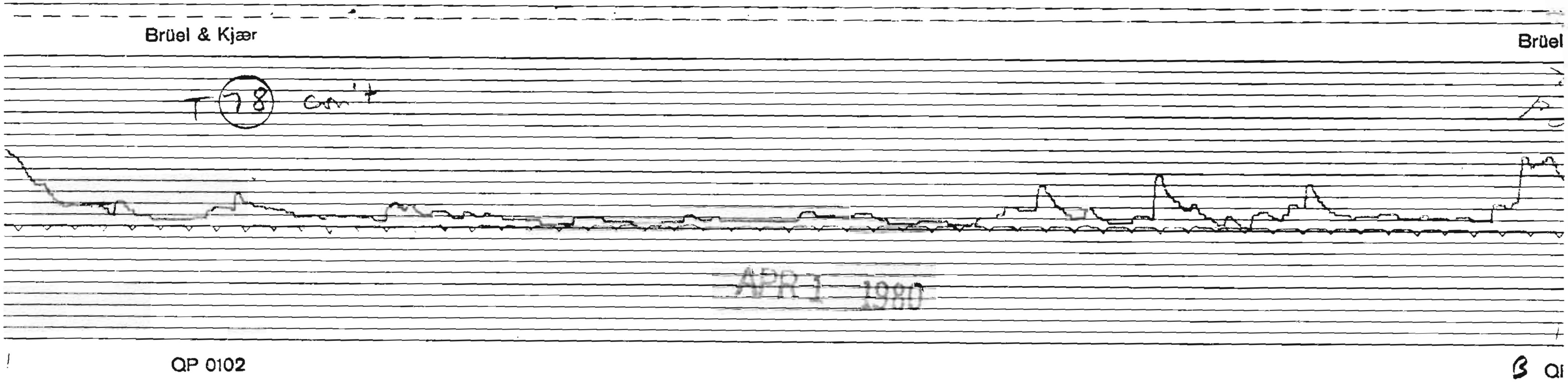


TASK ⑦⑧ Band Mill Edger Op., B3, Operating
4/1/80 Lee 3mm/sec

LOSHA = 95.6 ((90 + 85))

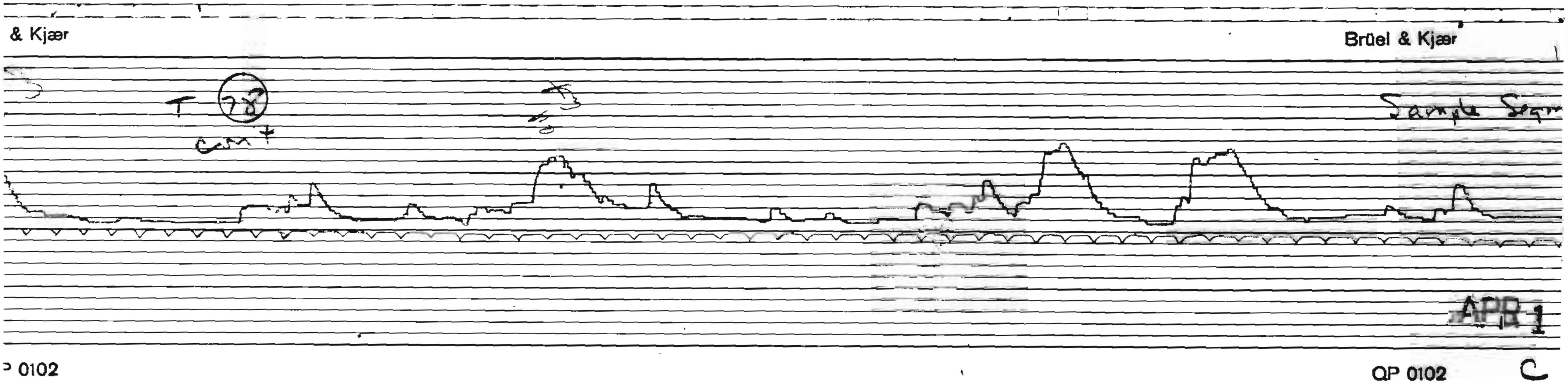
ed giving @ edger op. position,

A

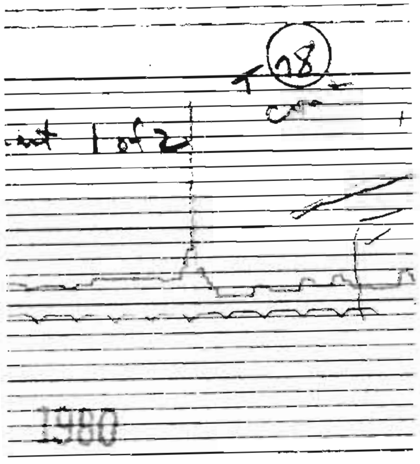


T ⑦⑧ con't

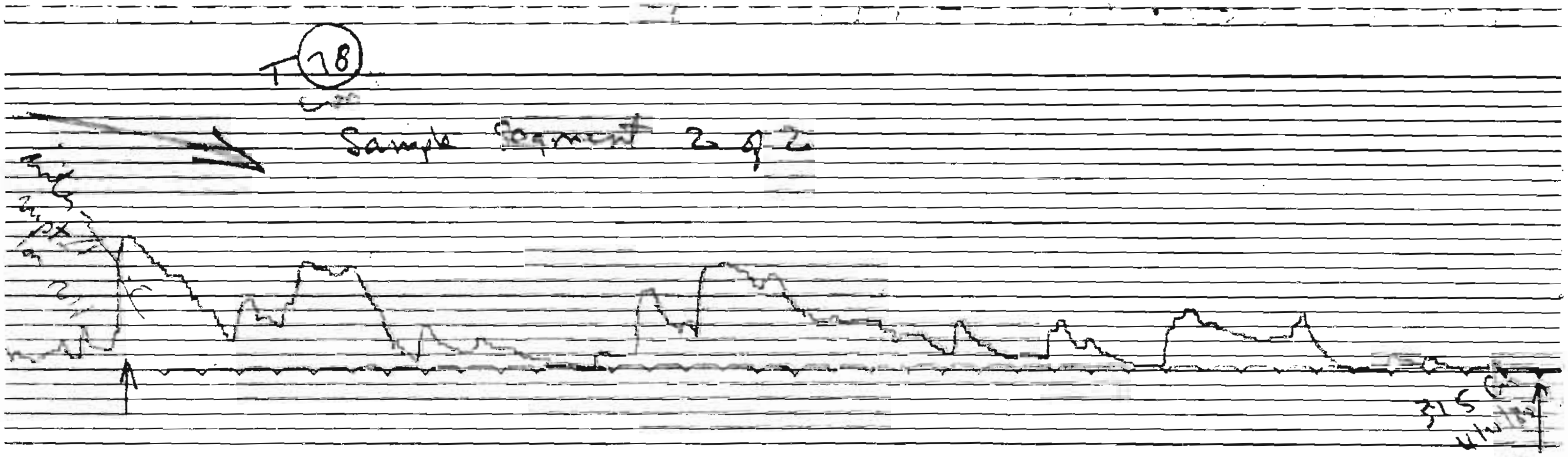
B


& Kjær
Brüel & Kjær
T ⑦⑧
Sample Segm
APR 1
P 0102
QP 0102

C

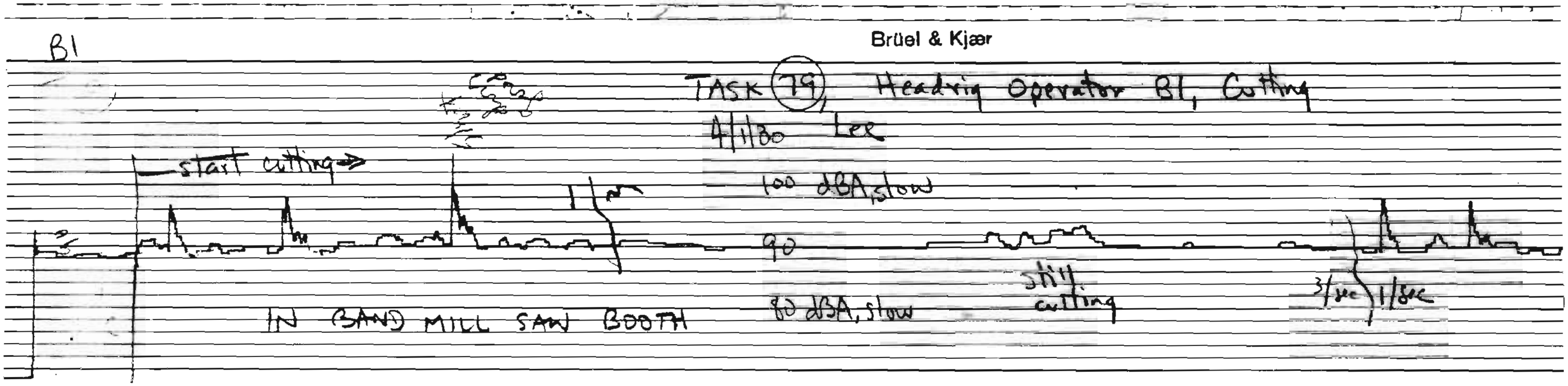

T ⑦⑧
nt 1 of 2
1980

D


T ⑦⑧
Sample ~~Segment~~ 2 of 2
31.5

E

B1



TASK (79), Heading Operator B1, Cutting

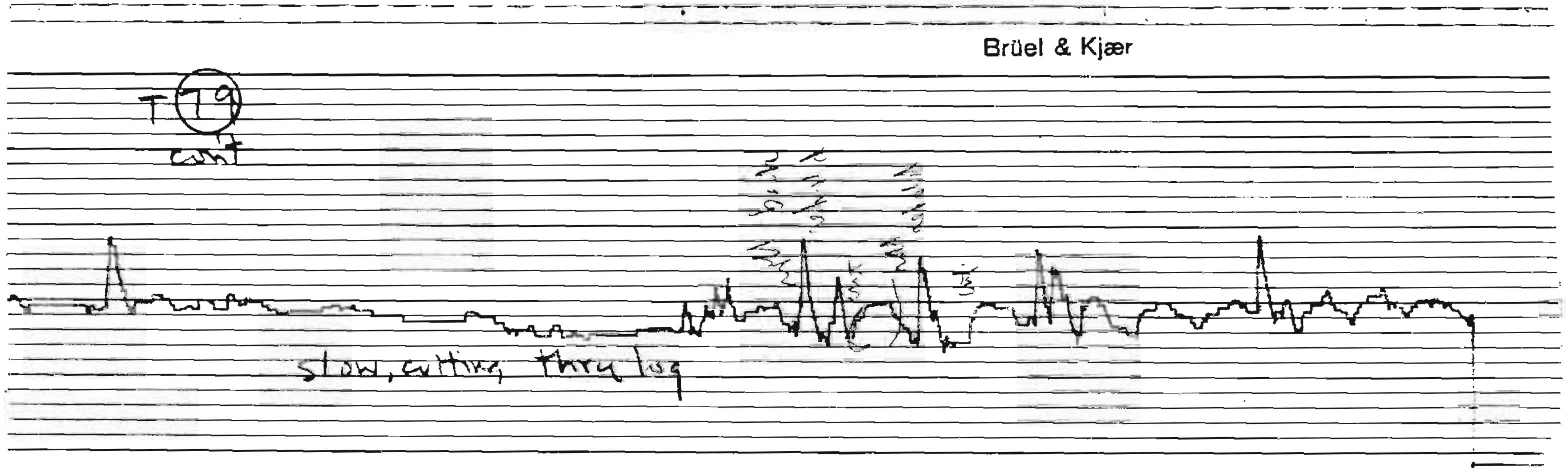
4/1/80 Lee

start cutting →

IN BAND MILL SAW BOOTH

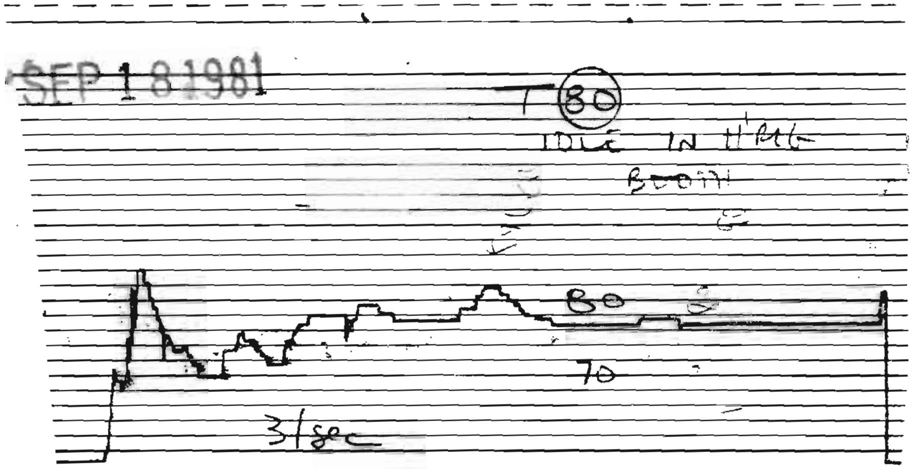
still cutting

3/sec 1/sec



T (79) cont

slow, cutting thru log

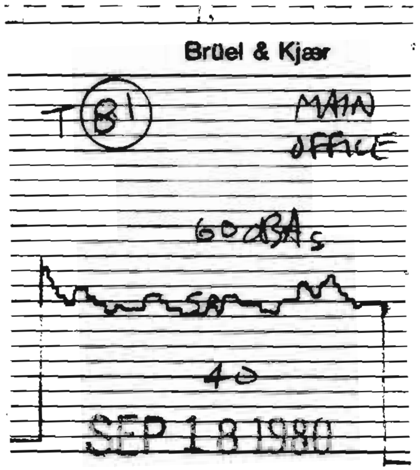


SEP 18 1981

T (80)

IDLE IN [illegible]

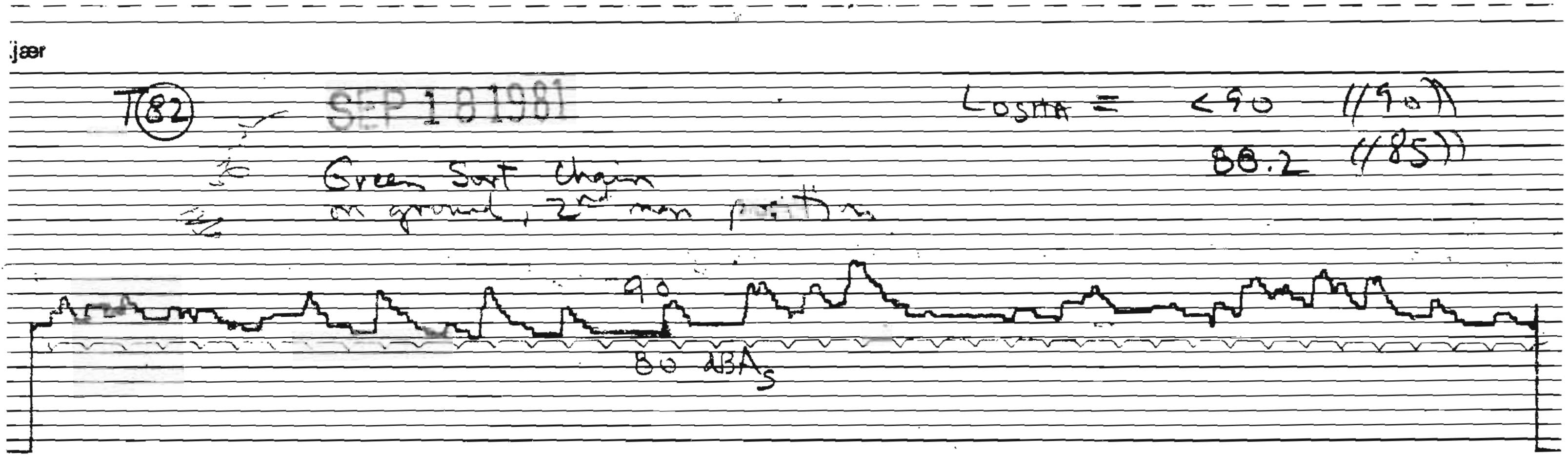
BOOTH



T (81)

MAIN OFFICE

SEP 18 1980



T(82)

SEP 18 1981

Green Sort Chain

on ground, 2nd man position

L_{OSHA} = <90 ((90))

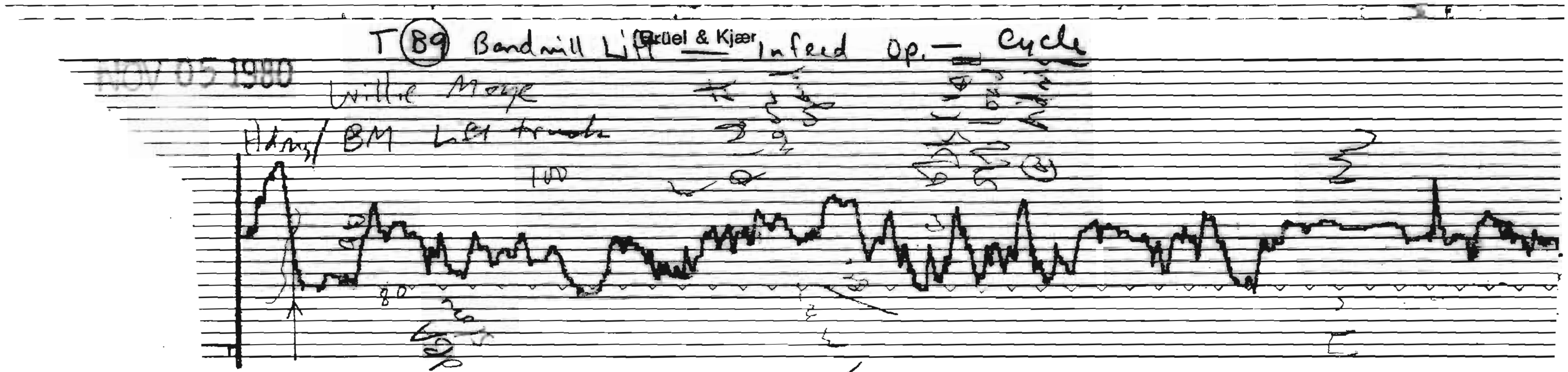
88.2 ((85))

NOV 05 1980

T (89) Bandmill Lift Infeed Op. — Cycle

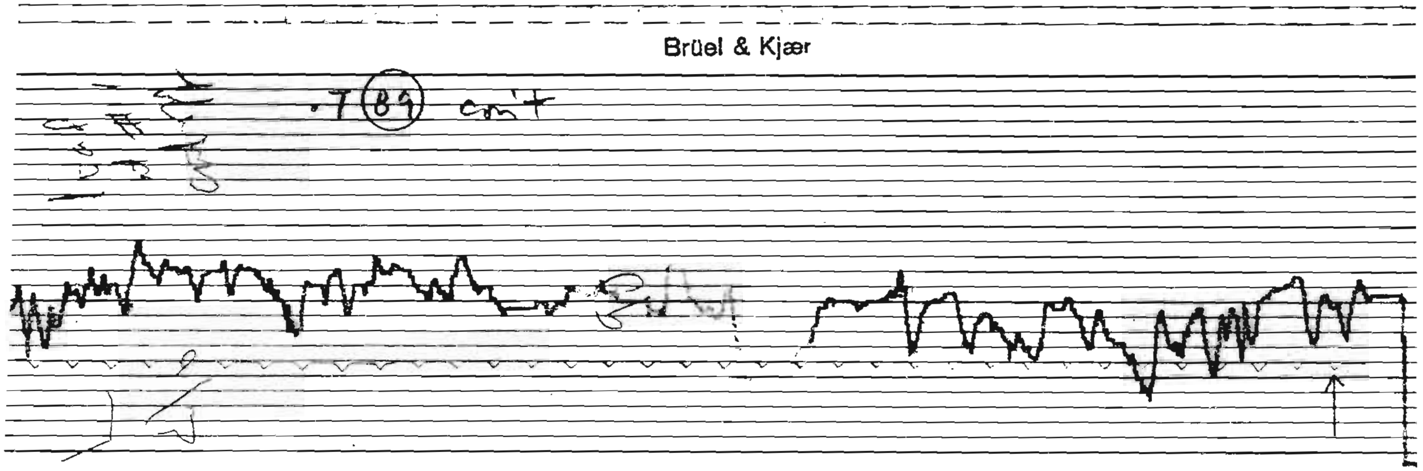
Willie Moye

Hdmz/ BM Lift trunks

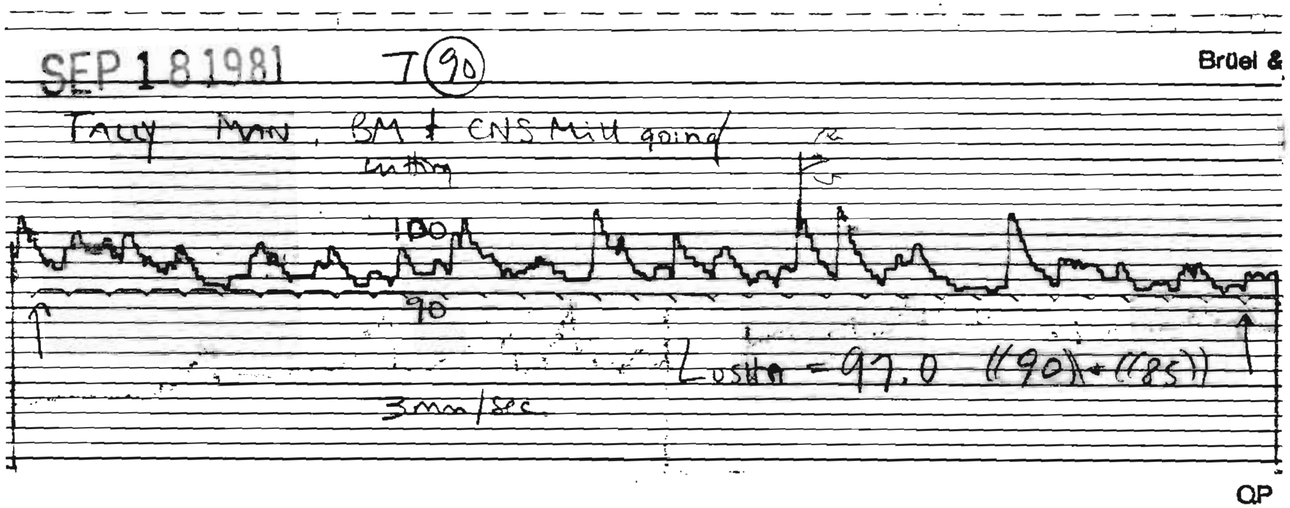


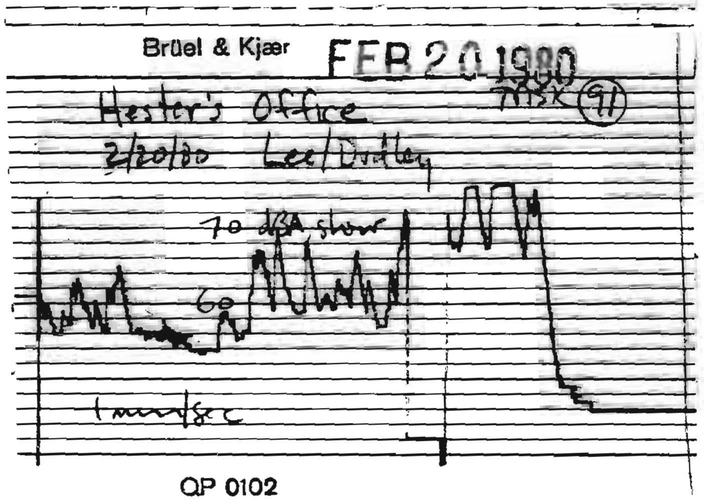
QP 0102

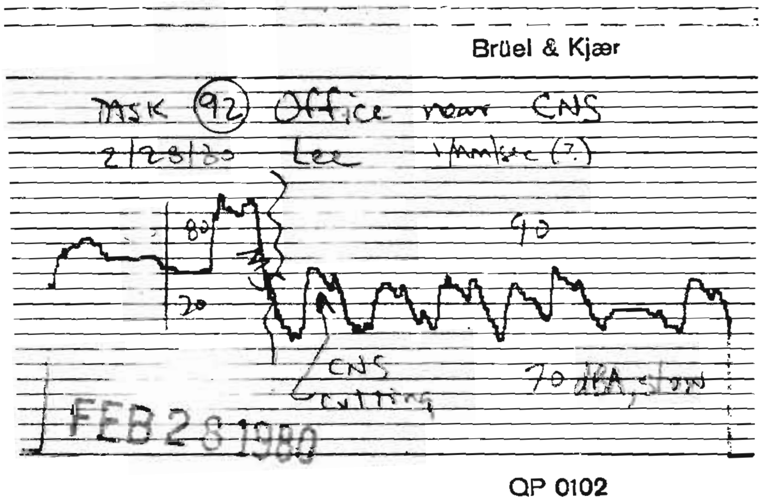
T (89) con't

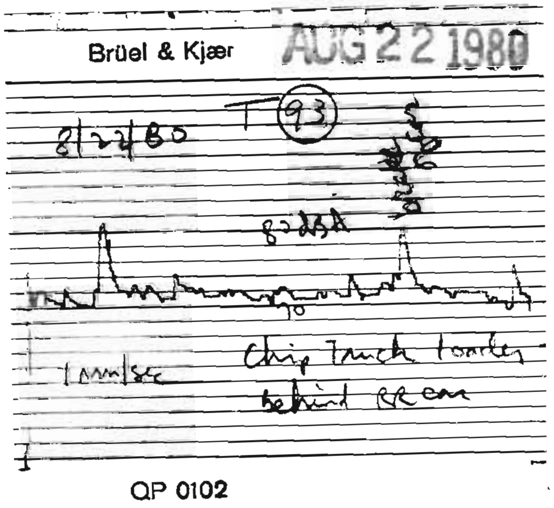


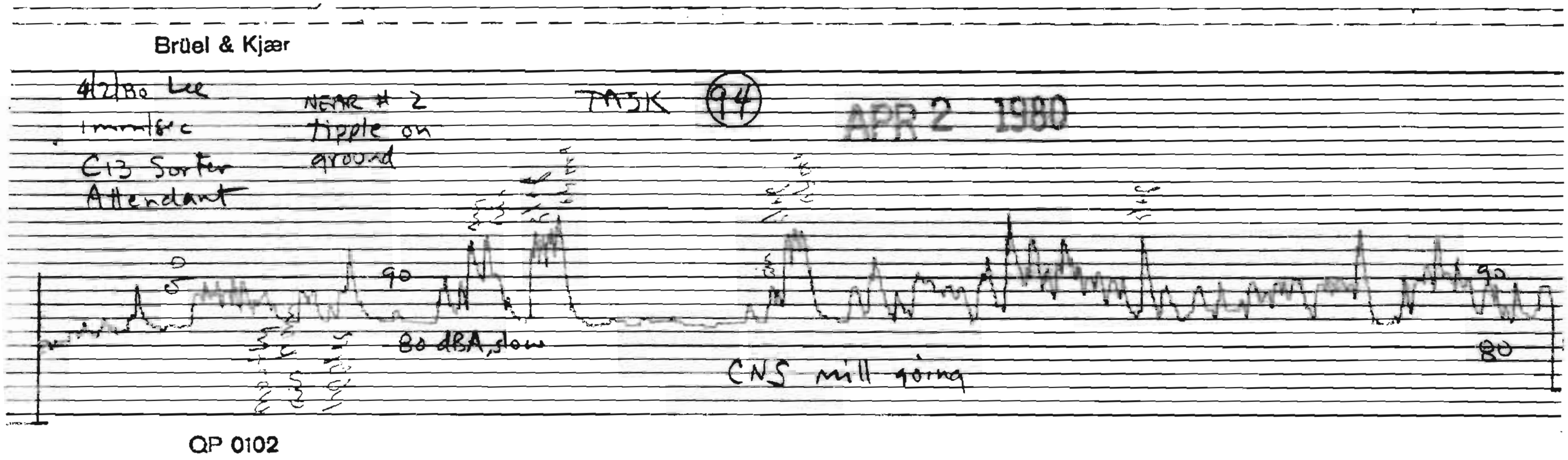
QP 0102


SEP 18 1981
T (90)
Brüel &
Tally Man, BM + CNS Mill going/cutting
100
90
Losha = 97.0 ((90))+((85))
3mm/sec
QP


Brüel & Kjær
FEB 20 1980
TASK (91)
Hester's Office
2/20/80 Lee/Dudley
70 dBA slow
60
1mm/sec
QP 0102


Brüel & Kjær
TASK (92) Office near CNS
2/28/80 Lee 1mm/sec (?)
80
70
90
CNS cutting
70 dBA, slow
FEB 28 1980
QP 0102


Brüel & Kjær
AUG 22 1980
8/22/80
T (93)
80 dBA
70
1mm/sec
Chip Truck loading behind RR car
QP 0102



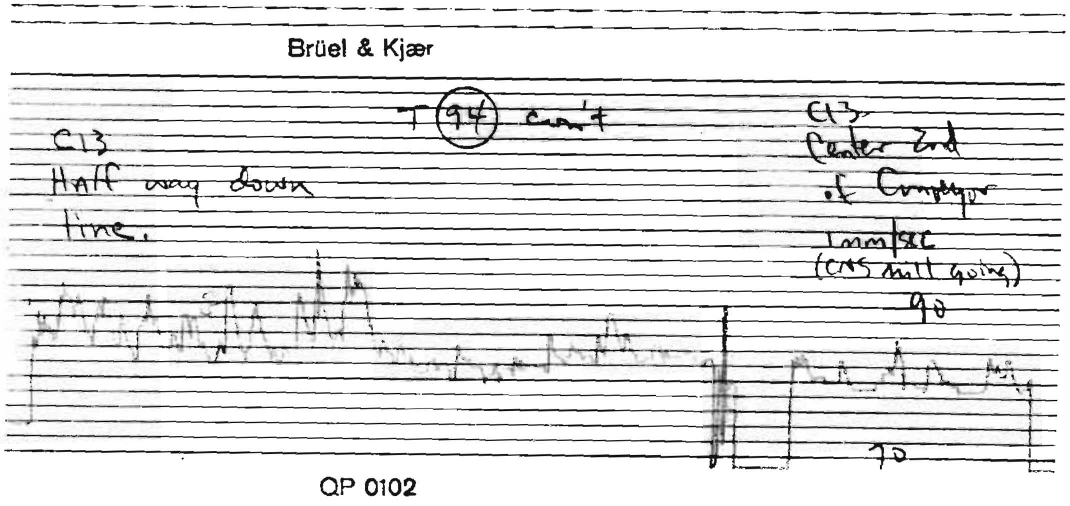
4/2/80 Lee
1mm/sec
C13 Sorter
Attendant

NEAR # 2
tipple on
ground

TASK ⑨④

APR 2 1980

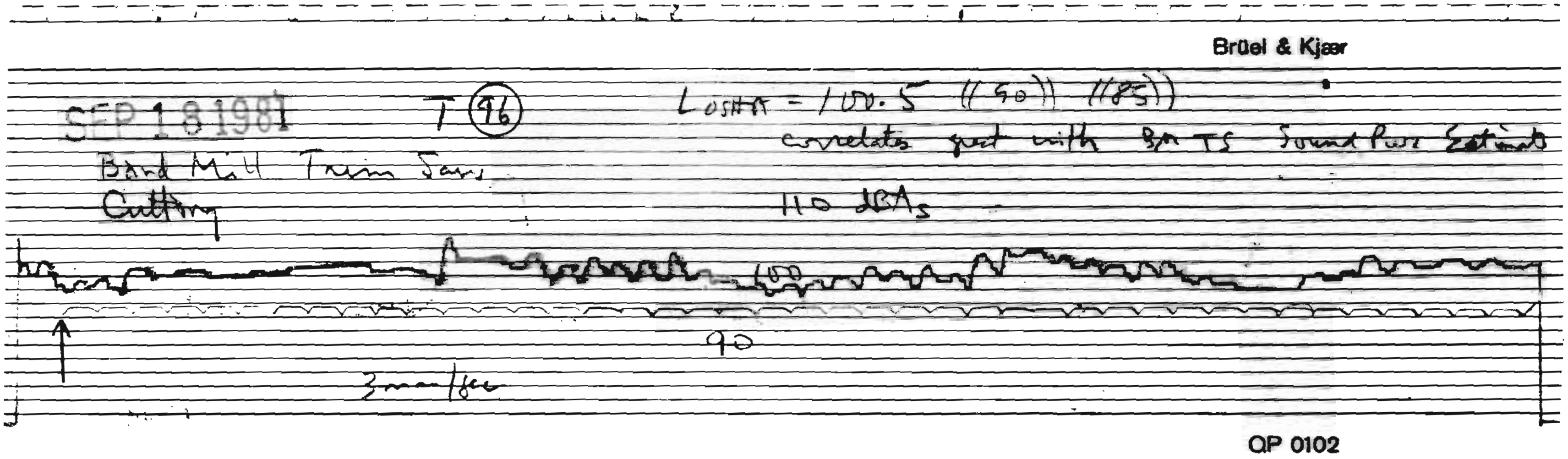
CNS mill going



T ⑨④ con't

C13
Half way down
line.

C13
Center End
of Conveyor
1mm/sec
(CNS mill going)



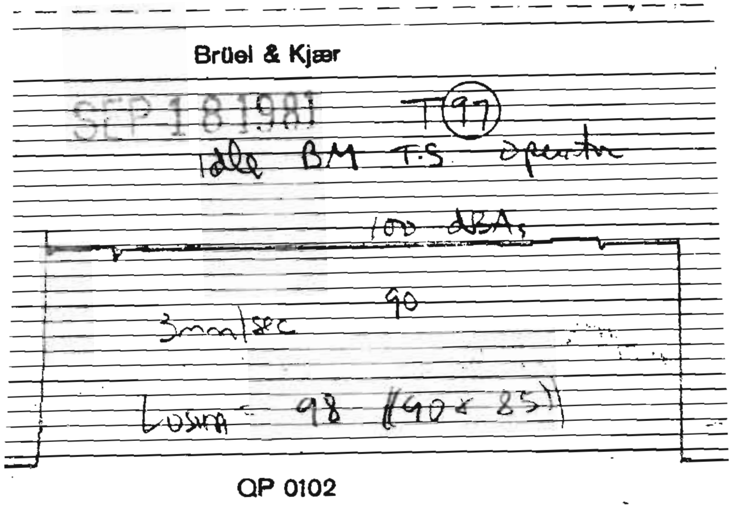
T (96)

L_{OSHA} = 100.5 ((90)) ((85))

correlates good with BM TS Sound Pwr Estimate

Band Mill Trim Saws
Cutting

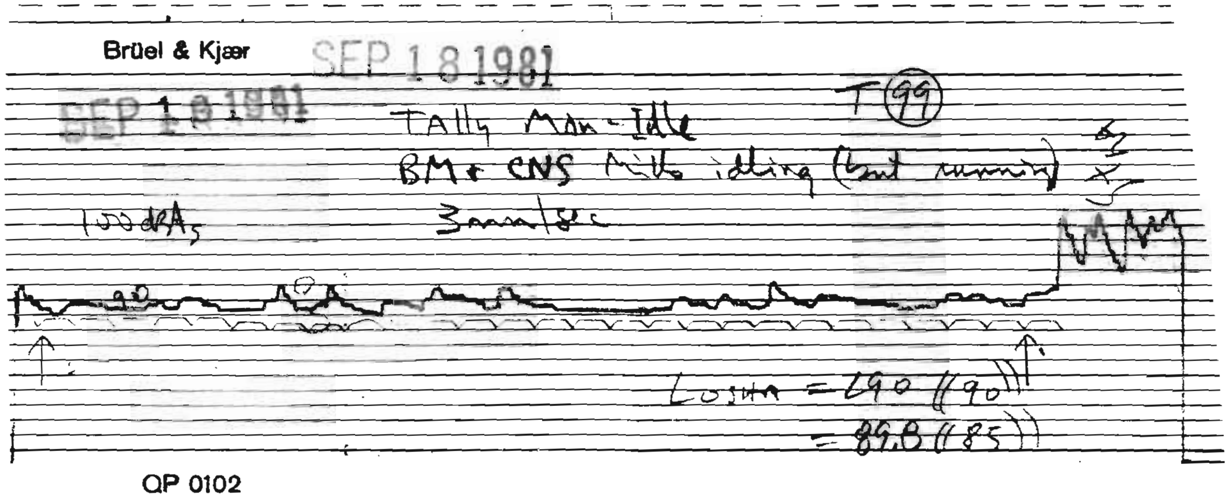
110 dBAs



T (97)

Idle BM T.S. operator

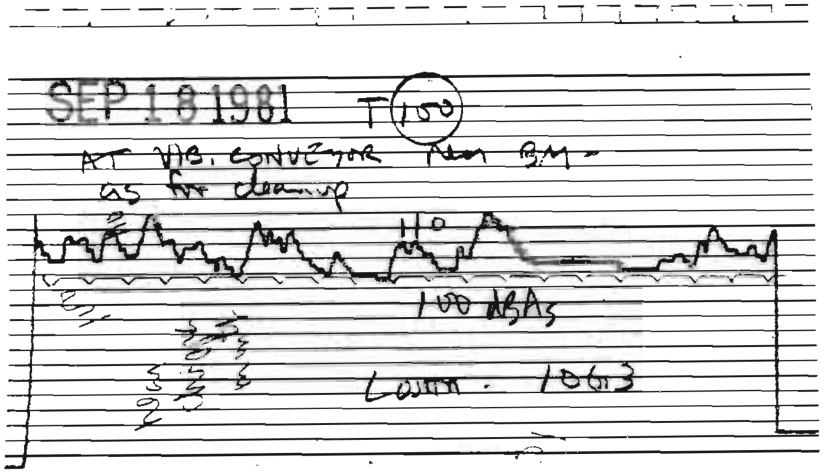
L_{OSHA} = 98 ((90 & 85))



T (99)

TAlly Man-Idle
BM & CNS Mills idling (but running)

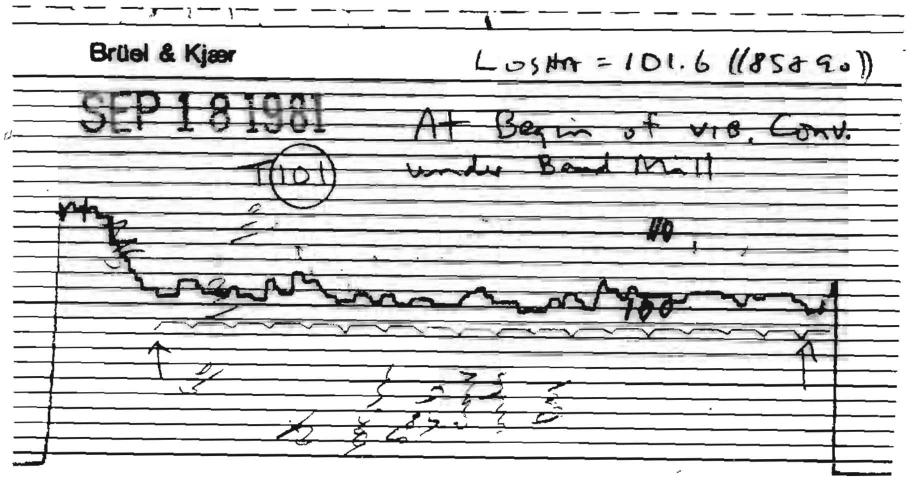
L_{OSHA} = 89.0 ((90))
= 89.8 ((85))



SEP 18 1981 T(150)

AT VIB. CONVEYOR from BM - as for cleanup

Losha · 106.3



Brüel & Kjær

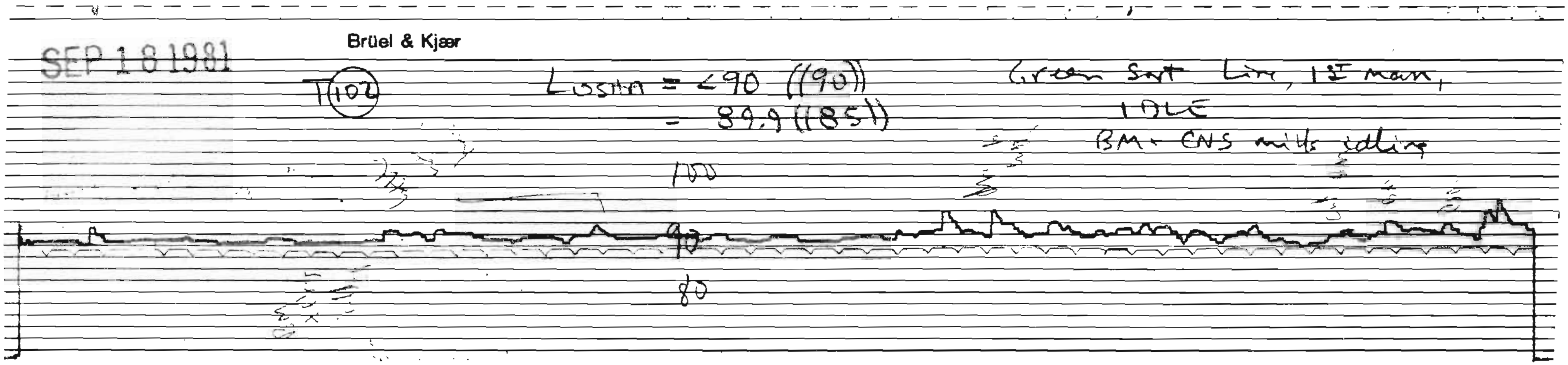
Losha = 101.6 ((85 & 90))

SEP 18 1981

At Begin of VIB. Conv. under Band Mill

T(101)

QP 0102



SEP 18 1981

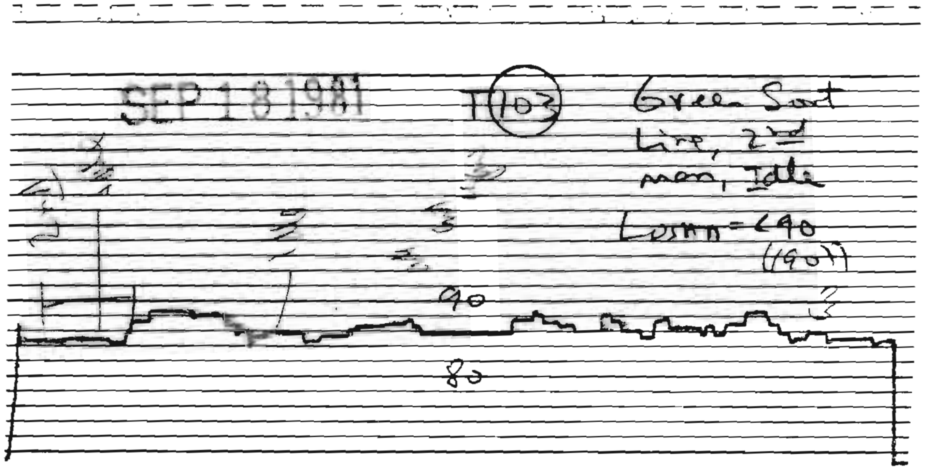
Brüel & Kjær

T(102)

Losha = <90 ((90))
= 89.9 ((85))

Green Sort Line, 1 I man,
IDLE
BM + CNS mills idling

QP 0102

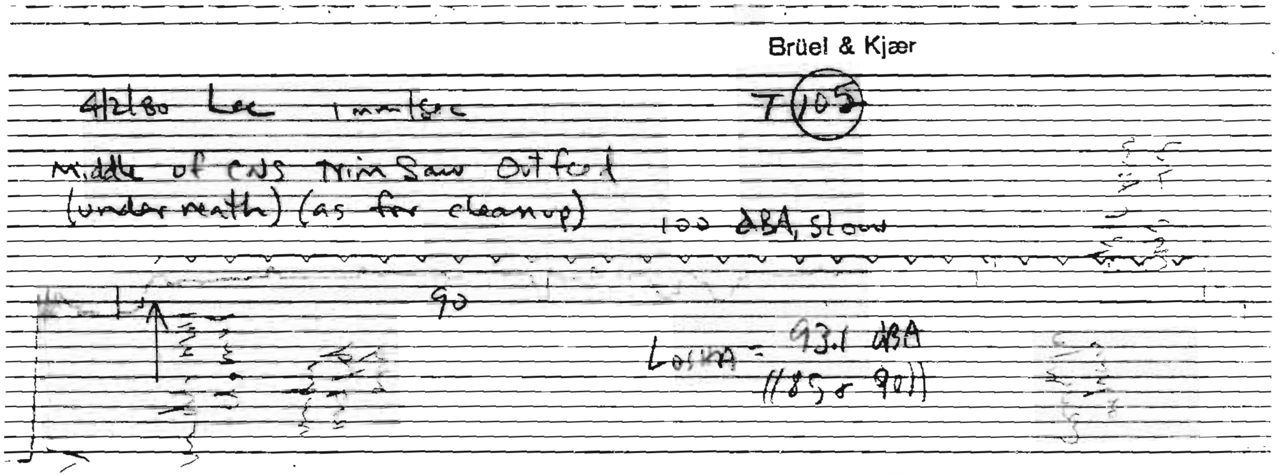


SEP 18 1981

T 103

Green Sort Line, 2nd man, Idle

Losha = <90 ((90))



T 105

4/2/80 Lee 1mm/sec

Middle of CNS Trim Saw Outfeed (underneath) (as for cleanup)

100 dBA, Slow

Losha = 93.1 dBA ((85 or 90))

ACOUSTICAL INFEED TUNNEL
FOR THE
FULGHUM MODEL 60-8K CHIPPER
AT THE
CONTINENTAL FOREST INDUSTRIES'
MILL No. 152
HAZLEHURST, GA

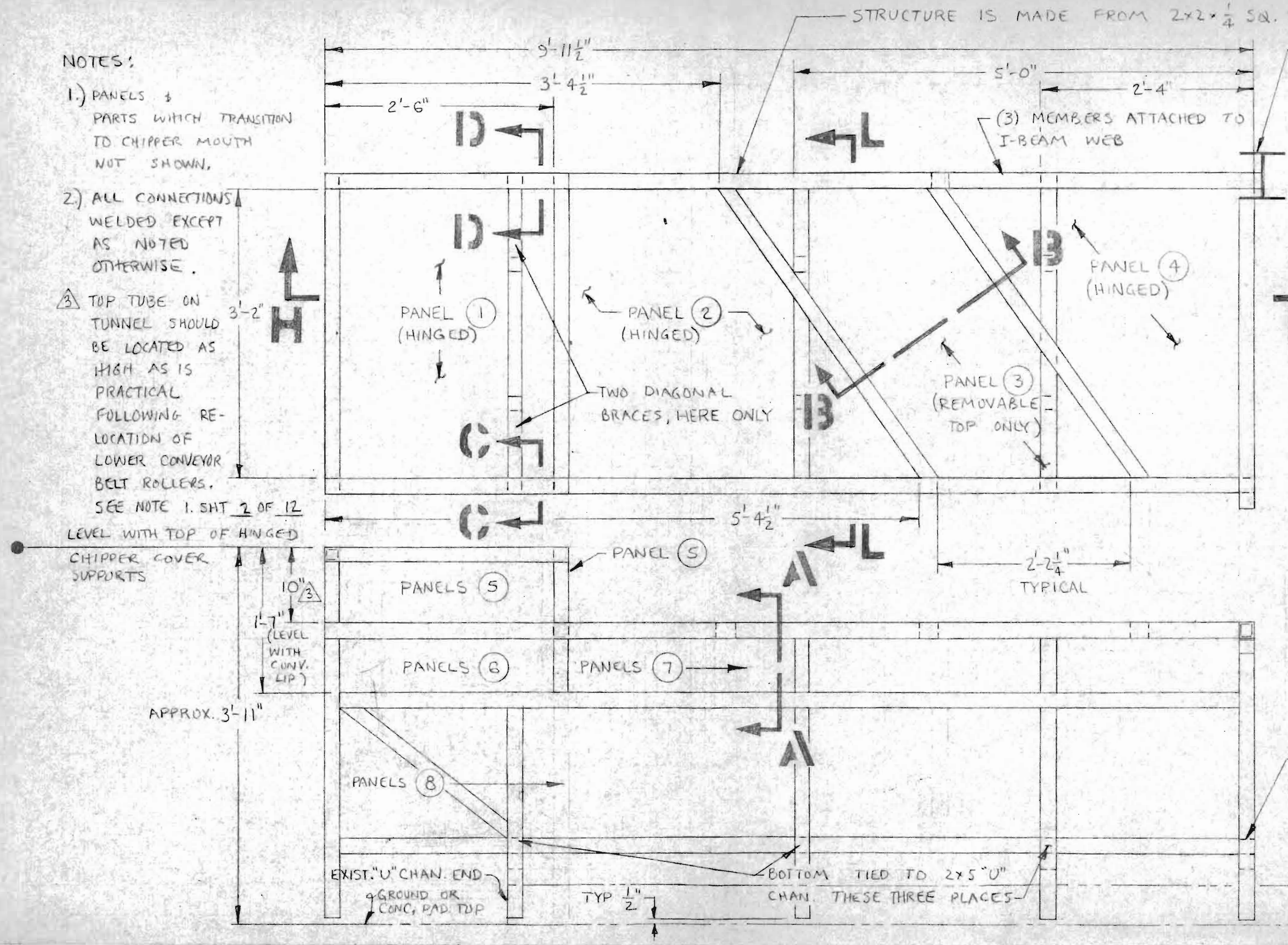
G.H. LEE, GA TECH IED, MACON, GA.
COMPLETED 6-3-81

NOTES:

1.) PANELS & PARTS WHICH TRANSITION TO CHIPPER MOUTH NOT SHOWN.

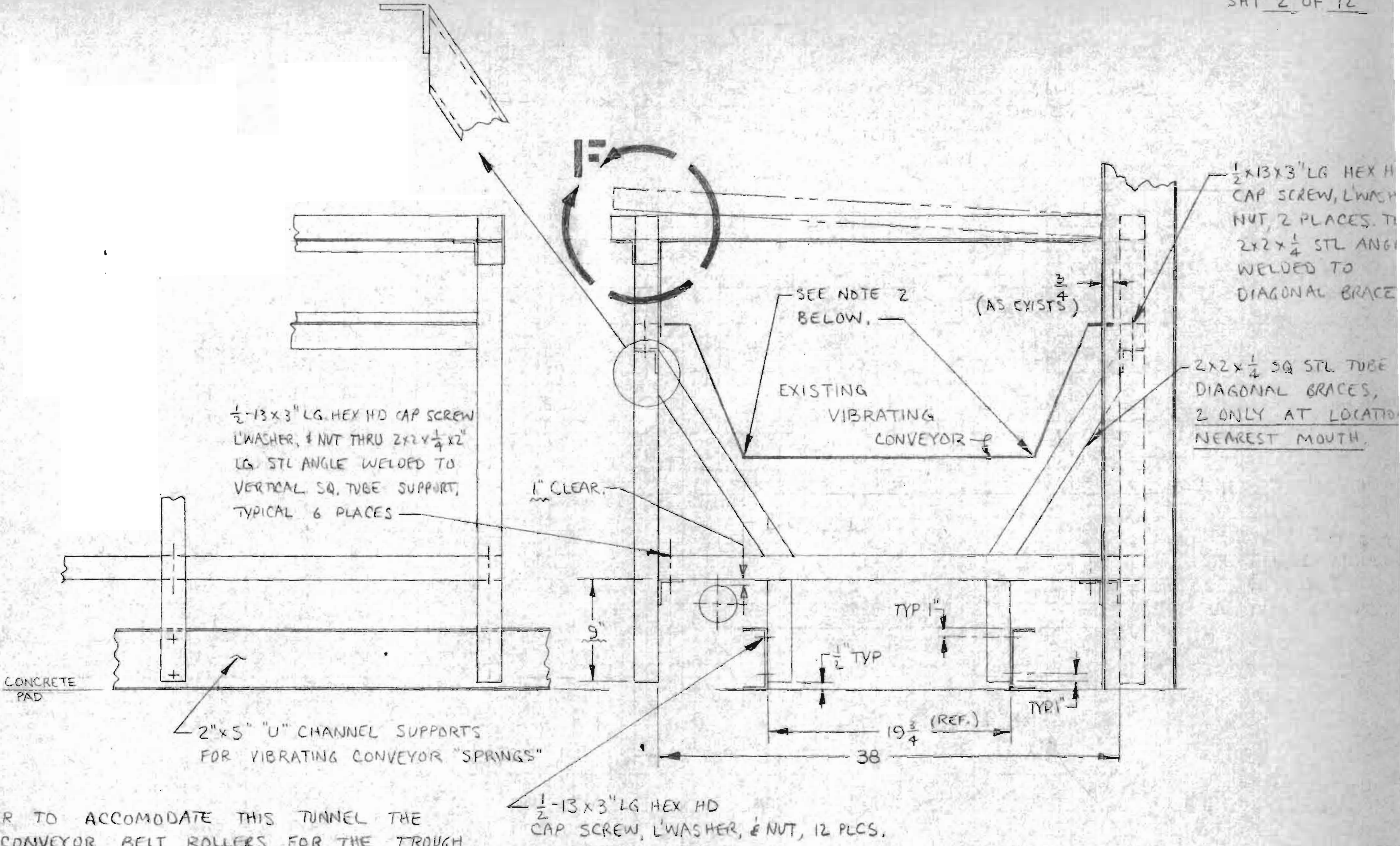
2.) ALL CONNECTIONS WELDED EXCEPT AS NOTED OTHERWISE.

△3 TOP TUBE ON TUNNEL SHOULD BE LOCATED AS HIGH AS IS PRACTICAL FOLLOWING RE-LOCATION OF LOWER CONVEYOR BELT ROLLERS. SEE NOTE 1. SHT 2 OF 12



GENERAL SIDE VIEW OF STRUCTURE

SHT 1 OF 12



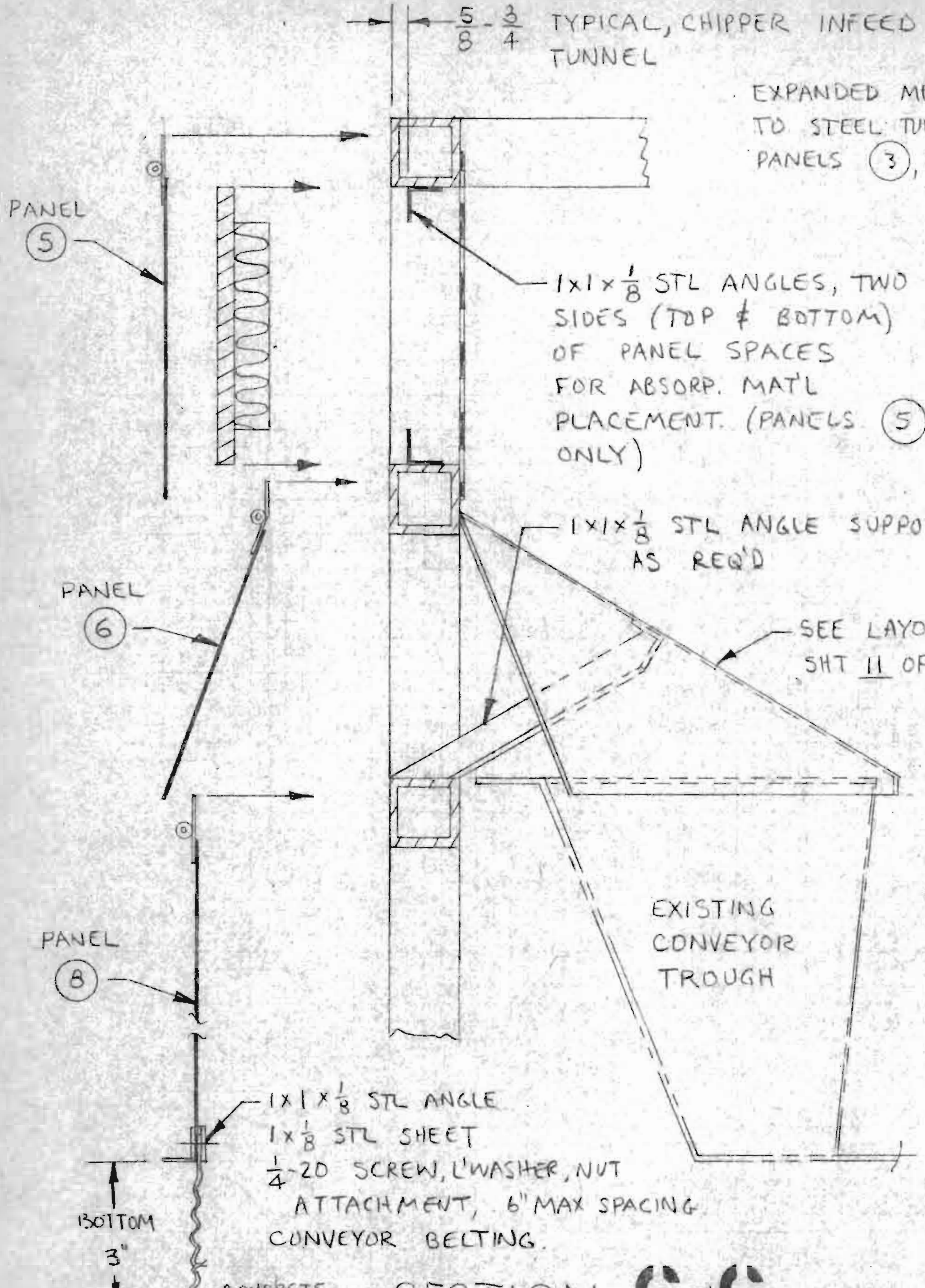
VIEW E-E

SCALE: 1"= 8" (1$\frac{1}{2}$"= 1'-0")

NOTES:

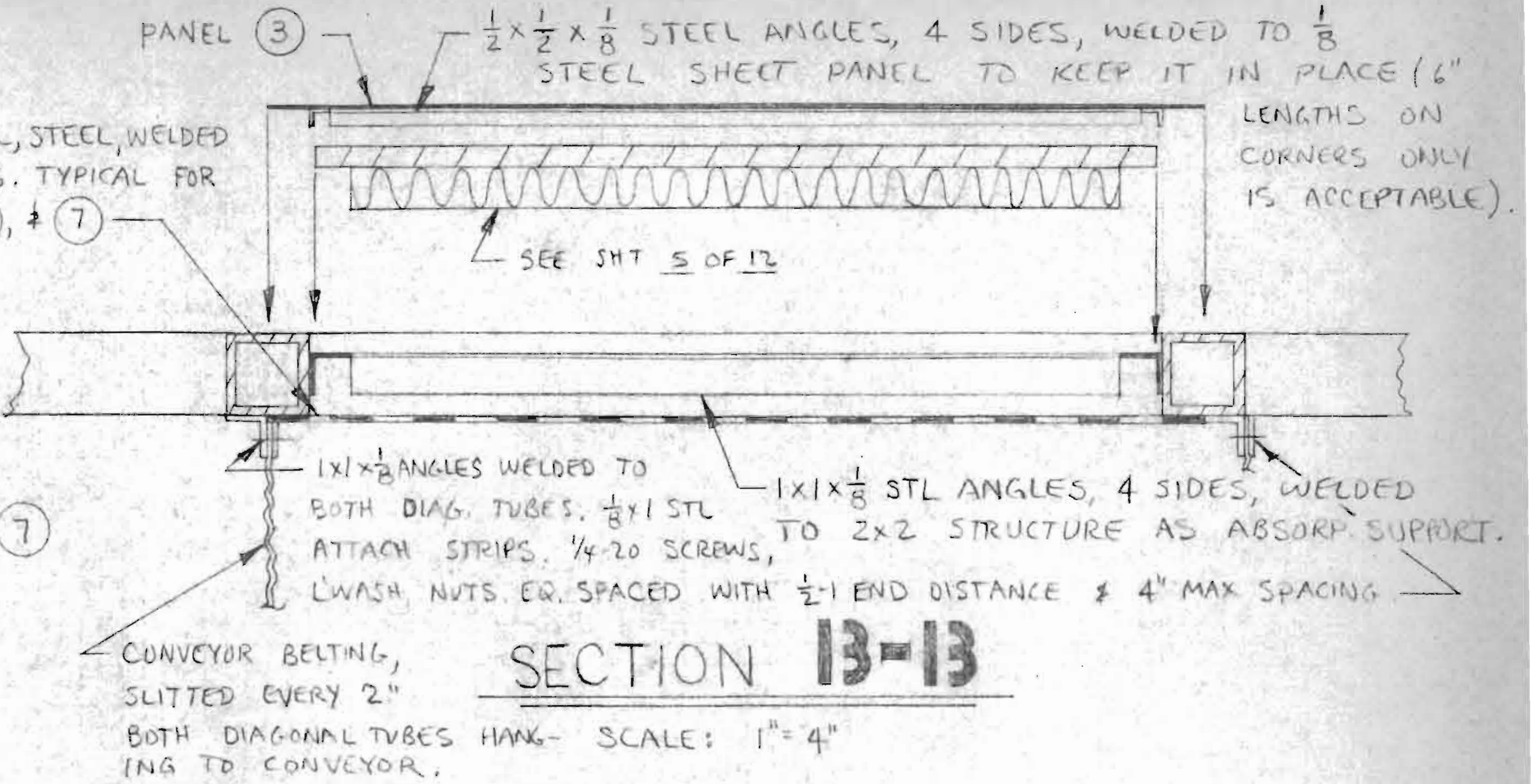
1.) IN ORDER TO ACCOMODATE THIS TUNNEL THE LOWER CONVEYOR BELT ROLLERS FOR THE TROUGH WHICH PASSES OVER THIS TUNNEL MUST BE RAISED. ALSO, THE 1/2-3/4" ELECTRICAL CONDUIT ATTACHED TO THE ABOVE MENTIONED TROUGH MUST BE RAISED.

2.) PATCH 2-3 HOLES IN THE VIBRATING CONVEYOR WHICH ALLOW SAWDUST TO ACCUMULATE ON THE GROUND UNDERNEATH.



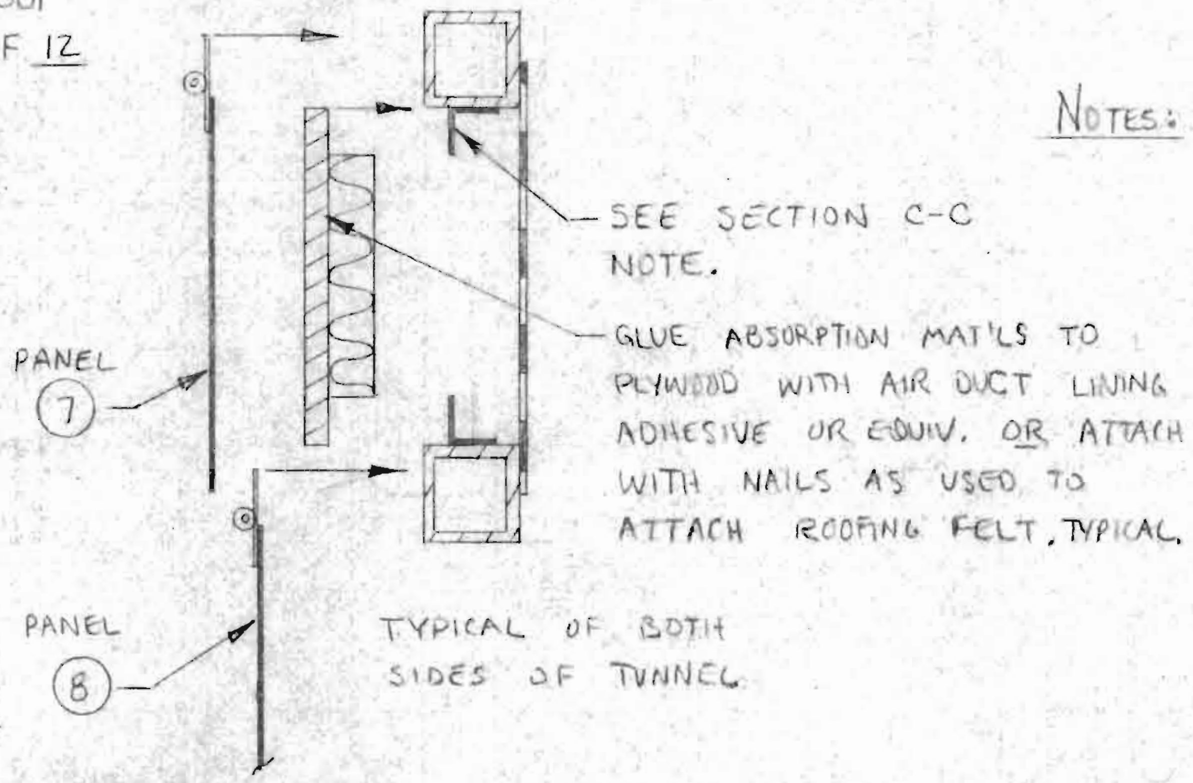
SECTION C-C

SCALE: 1"= 4"



SECTION B-B

SCALE: 1"= 4"

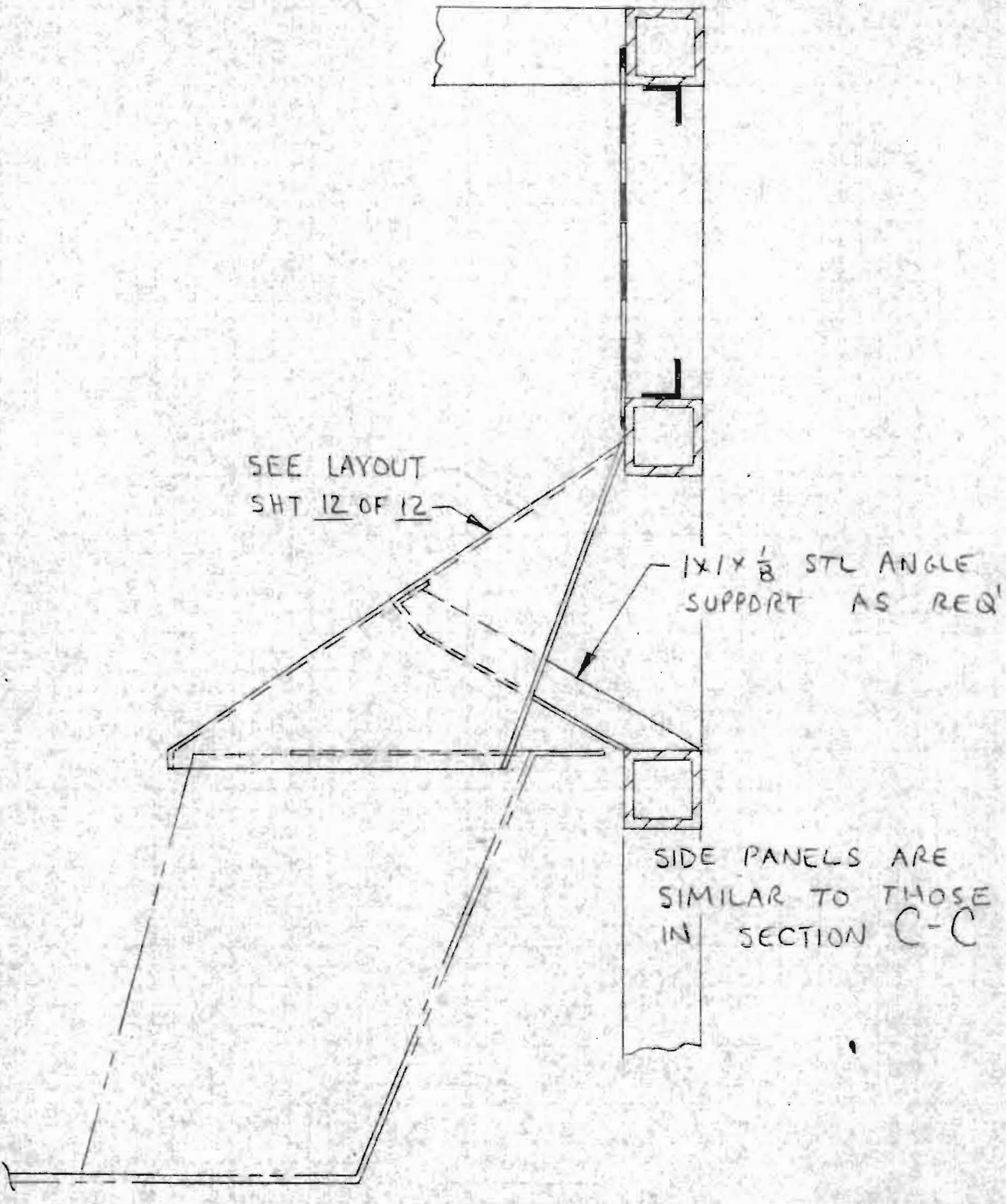


SECTION A-A

SCALE: 1"= 4"

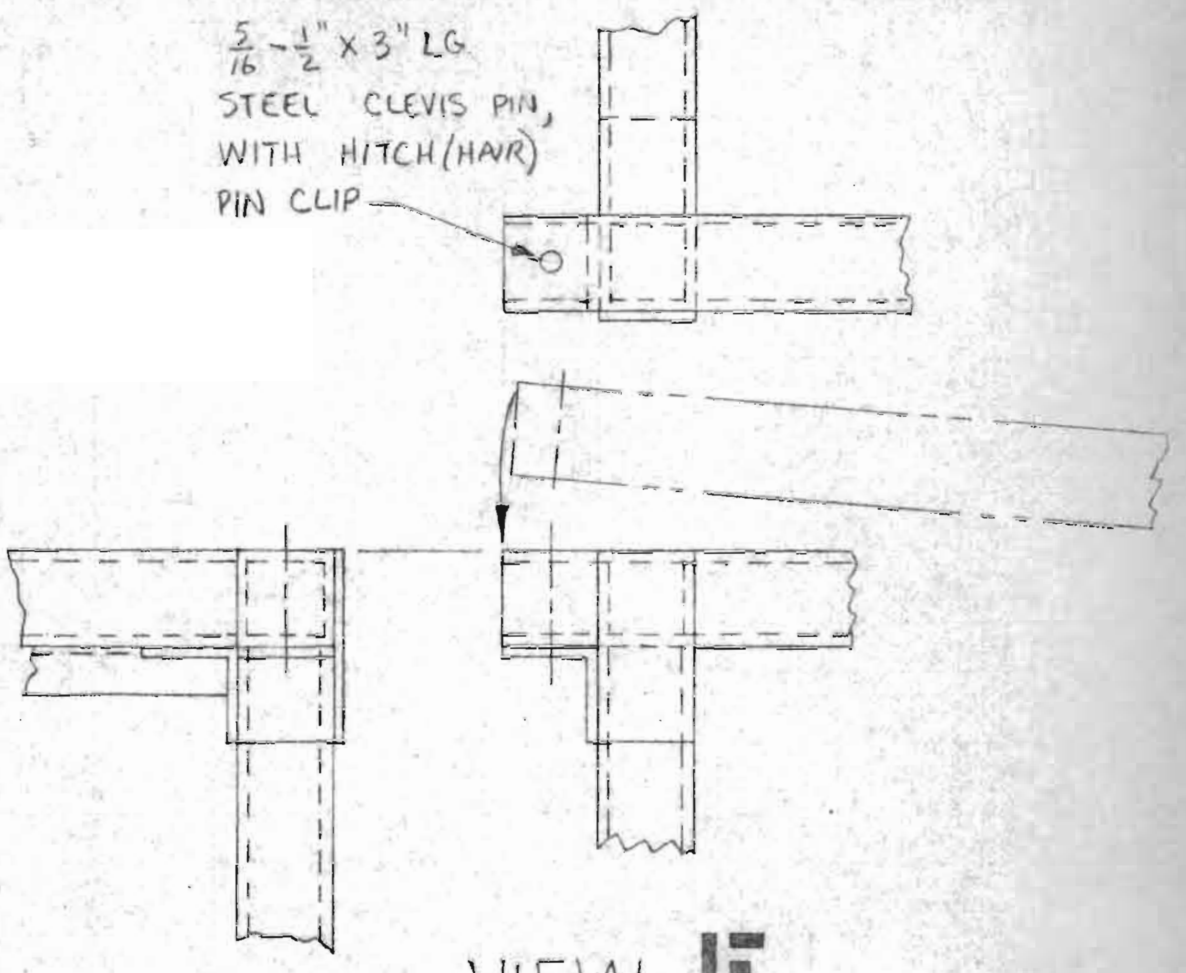
NOTES:

1.) PANELS ⑤, ⑥, ⑦ OF 1/8 STEEL SHEET, PANELS ⑧ MAY BE 16 GA TO 1/8" THK.
2.) IF HOLD DOWN SCREWS ARE LATER REQ'D FOR HANGING/HINGED PANELS USE 1/4-20 OR LARGER MACH. SCREWS OR QUICK ACTING ATTACHMENT.



SECTION D-D

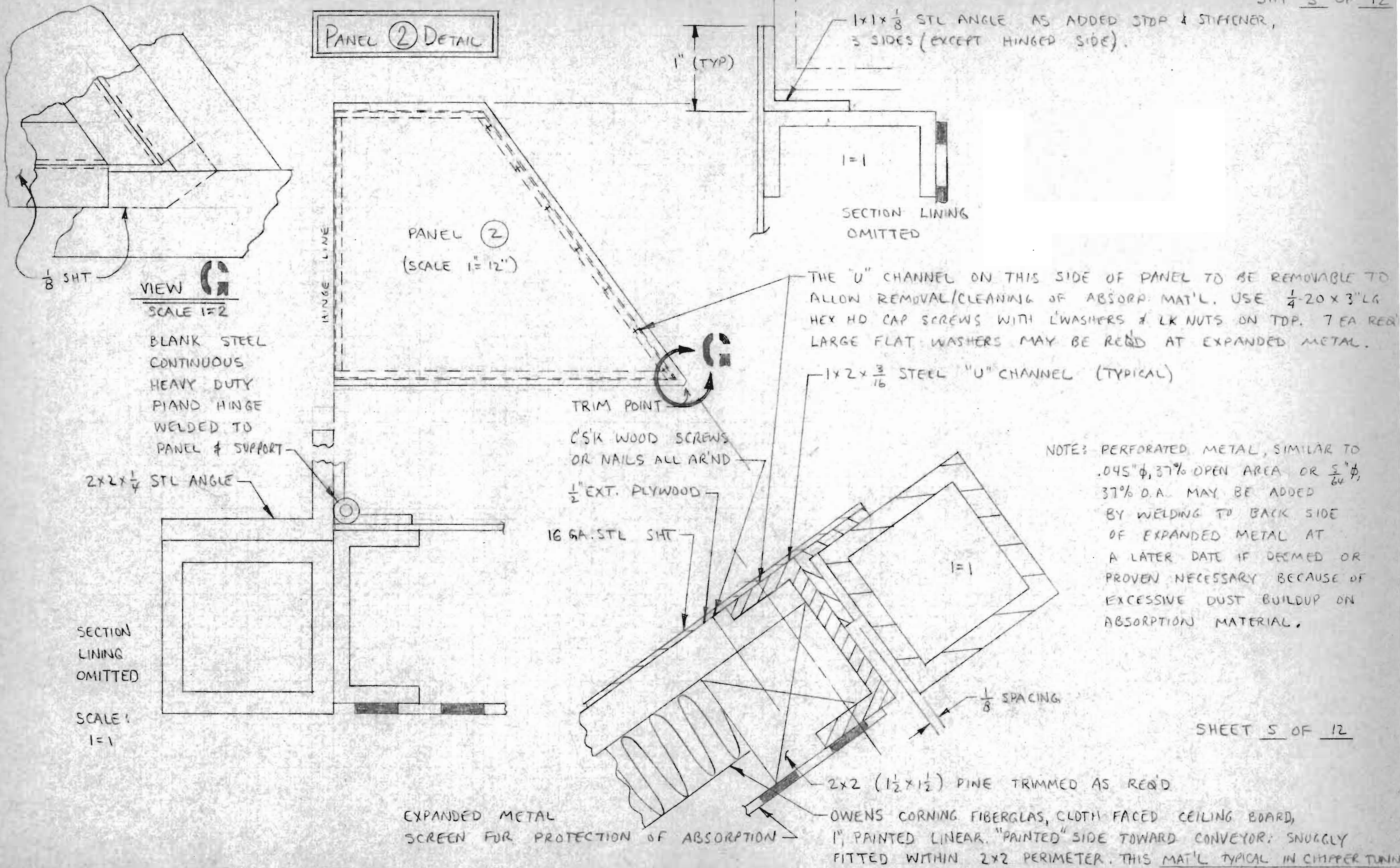
SCALE: 1:4



VIEW F

SCALE: 1=4

PANEL ② DETAIL

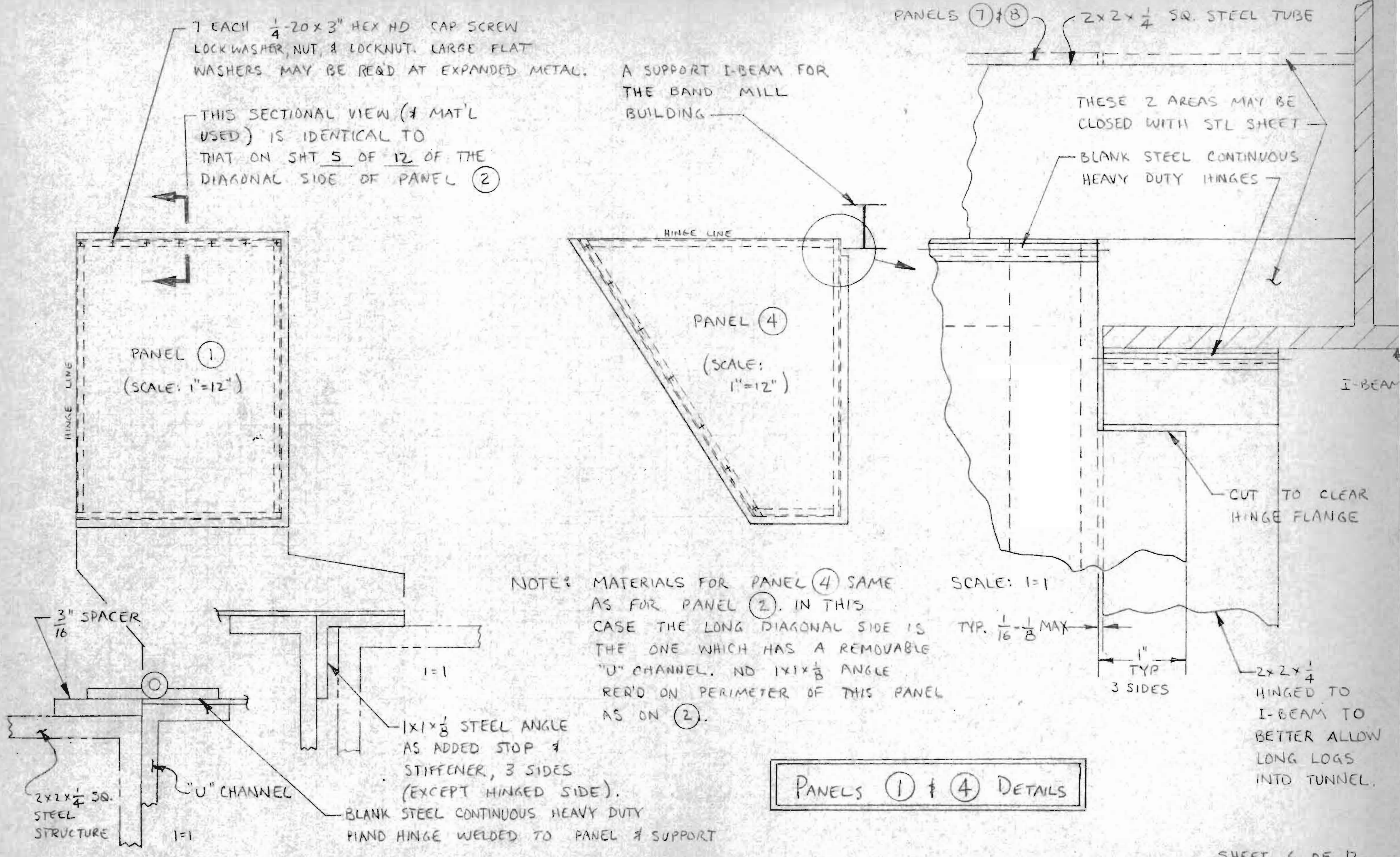


THE "U" CHANNEL ON THIS SIDE OF PANEL TO BE REMOVABLE TO ALLOW REMOVAL/CLEANING OF ABSORP. MAT'L. USE $\frac{1}{4}$-20 x 3" LG HEX HD CAP SCREWS WITH L'WASHERS & LK NUTS ON TOP. 7 EA REQ'D LARGE FLAT WASHERS MAY BE REQ'D AT EXPANDED METAL.

NOTE: PERFORATED METAL, SIMILAR TO .045"ϕ, 37% OPEN AREA OR $\frac{5}{64}$"ϕ, 37% O.A. MAY BE ADDED BY WELDING TO BACK SIDE OF EXPANDED METAL AT A LATER DATE IF DEEMED OR PROVEN NECESSARY BECAUSE OF EXCESSIVE DUST BUILDUP ON ABSORPTION MATERIAL.

EXPANDED METAL SCREEN FOR PROTECTION OF ABSORPTION

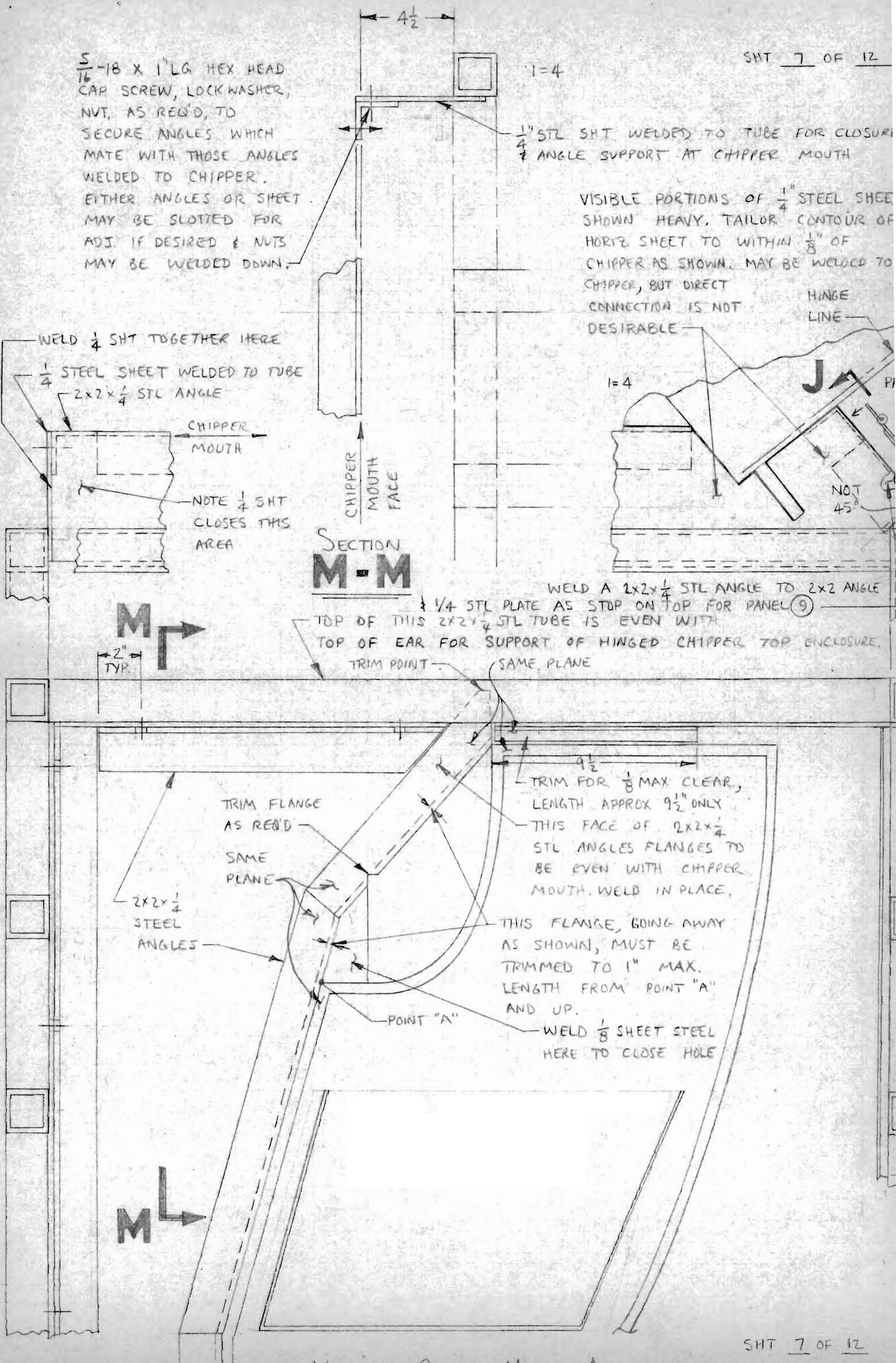
OWENS CORNING FIBERGLAS, CLOTH FACED CEILING BOARD, 1", PAINTED LINEAR. "PAINTED" SIDE TOWARD CONVEYOR. SNUGGLY FITTED WITHIN 2x2 PERIMETER. THIS MAT'L TYPICAL IN CHIPPER TUNN



NOTE: MATERIALS FOR PANEL ④ SAME AS FOR PANEL ②. IN THIS CASE THE LONG DIAGONAL SIDE IS THE ONE WHICH HAS A REMOVABLE "U" CHANNEL. NO 1 x 1 x $\frac{1}{8}$ ANGLE REQ'D ON PERIMETER OF THIS PANEL AS ON ②.

PANELS ① & ④ DETAILS

SHEET 6 OF 12



$\frac{5}{16}$-18 X 1" LG. HEX HEAD CAP SCREW, LOCKWASHER, NUT, AS REQ'D, TO SECURE ANGLES WHICH MATE WITH THOSE ANGLES WELDED TO CHIPPER. EITHER ANGLES OR SHEET MAY BE SLOTTED FOR ADJ. IF DESIRED & NUTS MAY BE WELDED DOWN.

$\frac{1}{4}$" STL SHT WELDED TO TUBE FOR CLOSURI
& ANGLE SUPPORT AT CHIPPER MOUTH

VISIBLE PORTIONS OF $\frac{1}{4}$" STEEL SHEE
SHOWN HEAVY. TAILOR CONTOUR OF
HORIZ. SHEET TO WITHIN $\frac{1}{8}$" OF
CHIPPER AS SHOWN. MAY BE WELDED TO
CHIPPER, BUT DIRECT CONNECTION IS NOT DESIRABLE

WELD $\frac{1}{4}$ SHT TOGETHER HERE

$\frac{1}{4}$ STEEL SHEET WELDED TO TUBE

NOTE $\frac{1}{4}$ SHT CLOSES THIS AREA

WELD A 2x2x$\frac{1}{4}$ STL ANGLE TO 2x2 ANGLE & 1/4 STL PLATE AS STOP ON TOP FOR PANEL ⑨

TOP OF THIS 2x2x$\frac{1}{4}$ STL TUBE IS EVEN WITH TOP OF EAR FOR SUPPORT OF HINGED CHIPPER TOP ENCLOSURE.

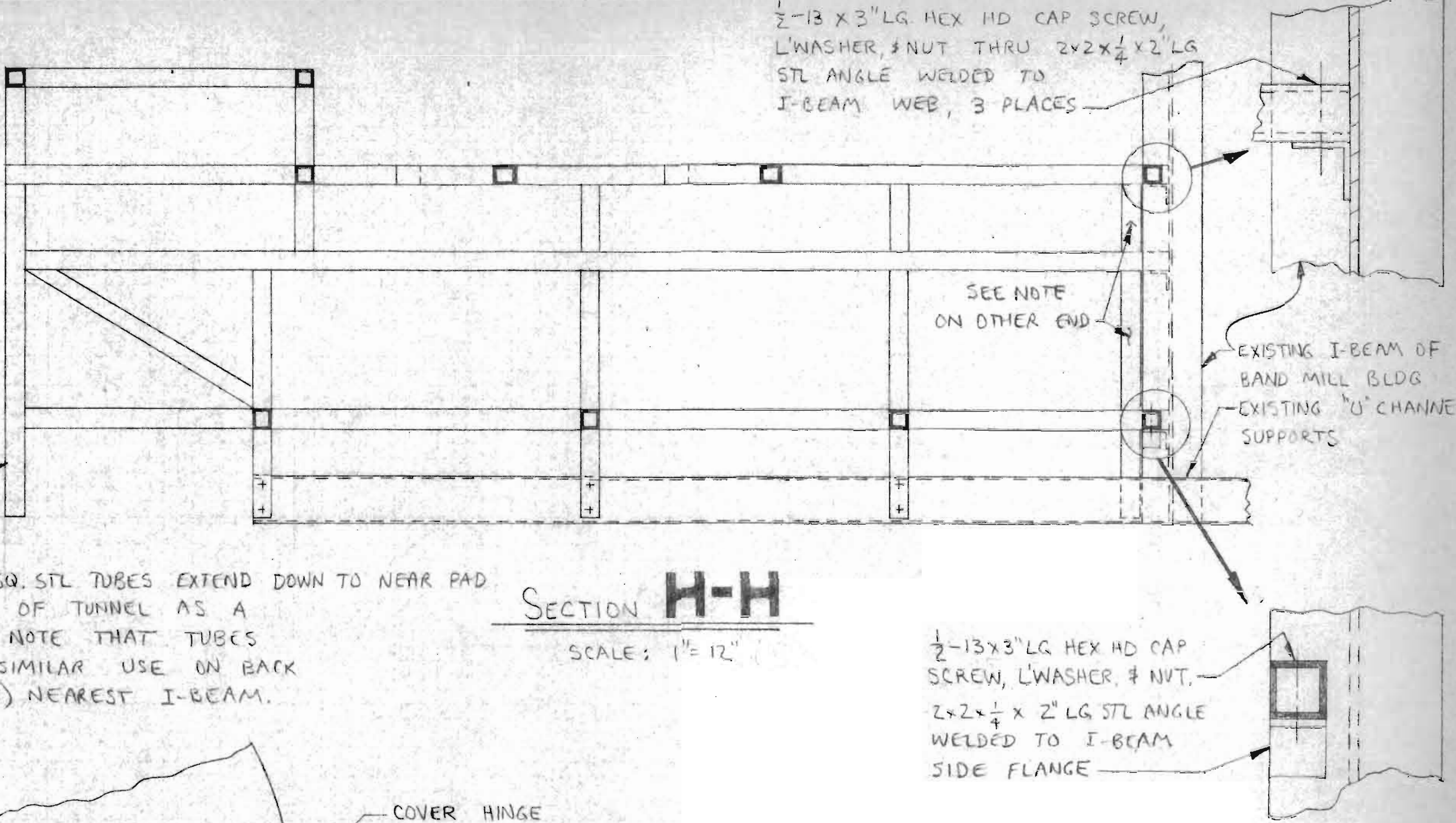
TRIM FOR $\frac{1}{8}$ MAX CLEAR, LENGTH APPROX 9$\frac{1}{2}$" ONLY

THIS FACE OF 2x2x$\frac{1}{4}$ STL ANGLES FLANGES TO BE EVEN WITH CHIPPER MOUTH. WELD IN PLACE.

THIS FLANGE, GOING AWAY AS SHOWN, MUST BE TRIMMED TO 1" MAX. LENGTH FROM POINT "A" AND UP.

WELD $\frac{1}{8}$ SHEET STEEL HERE TO CLOSE HOLE

VIEW OF CHIPPER MOUTH AREA



$\frac{1}{2}$-13 x 3" LG. HEX HD CAP SCREW, L'WASHER, & NUT THRU 2x2x$\frac{1}{4}$x2" LG STL ANGLE WELDED TO I-BEAM WEB, 3 PLACES

SEE NOTE ON OTHER END

EXISTING I-BEAM OF BAND MILL BLDG

EXISTING "U" CHANNEL SUPPORTS

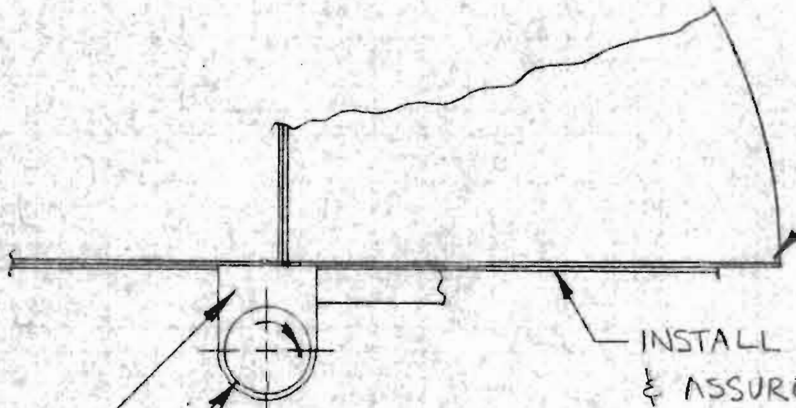
NOTE THAT 2x2x$\frac{1}{4}$ SQ. STL TUBES EXTEND DOWN TO NEAR PAD OR GROUND ON OUTSIDES OF TUNNEL AS A PANEL STOP. ALSO NOTE THAT TUBES ARE ADDED FOR SIMILAR USE ON BACK SIDE (AS SEEN HERE) NEAREST I-BEAM.

$\frac{1}{2}$-13x3" LG HEX HD CAP SCREW, L'WASHER, & NUT.

2x2x$\frac{1}{4}$ x 2" LG STL ANGLE WELDED TO I-BEAM SIDE FLANGE

SECTION **H-H**

SCALE: 1" = 12"



COVER HINGE

INSTALL NEOPRENE OR RUBBER GASKET MATERIAL & ASSURE TIGHT COVER AFTER MAINTENANCE PERIODS. THIS APPLIES TO ALL CHIPPER HOUSING SEAMS, AS POSSIBLE. WELD UP ALL HOLES & MAINTAIN HOUSING AFTER PERIODIC CHECKS.

CHIPPER DRIVE SHAFT

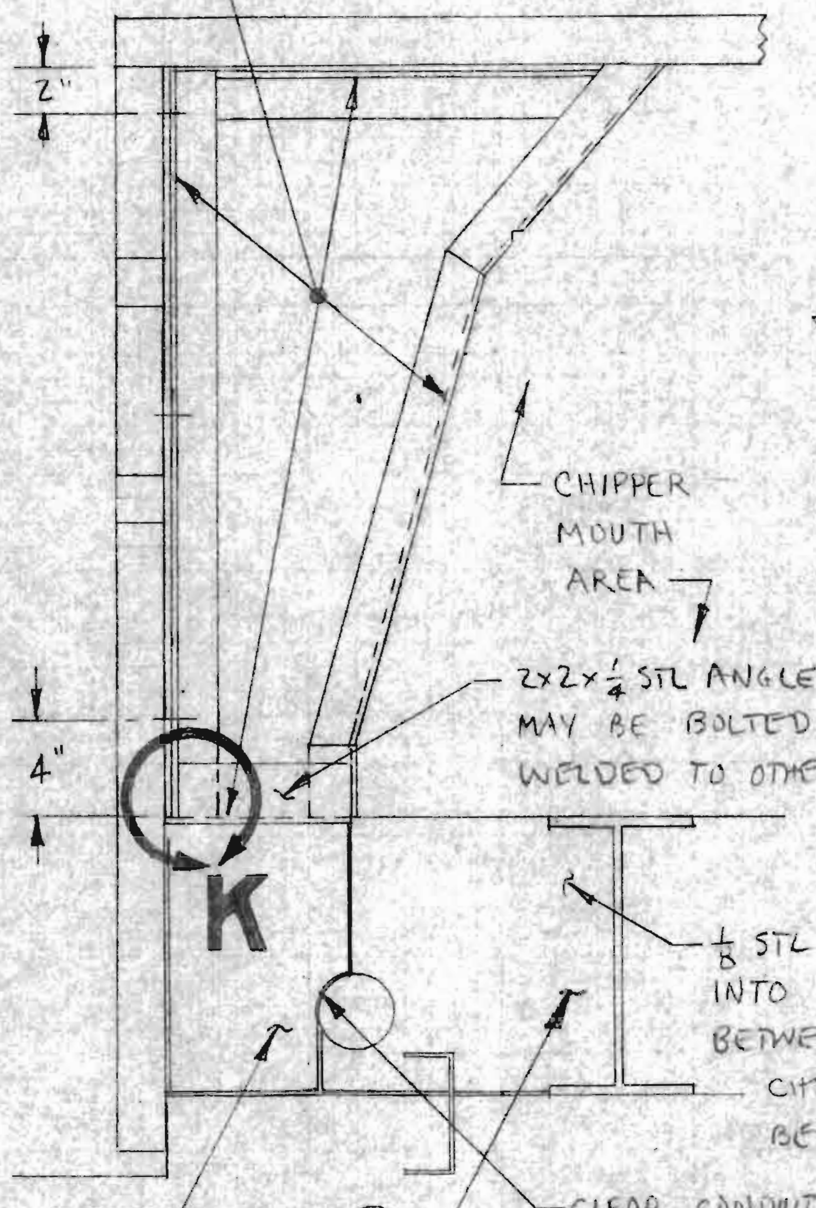
CLOSE THIS HOLE MORE COMPLETELY AS CLOSE AS POSSIBLE, USING STEEL SHEET & CONVEYOR BELTING. OPPOSITE SIDE CAN USE CLOSURE ON THE SIDES TOO.

VIEW OF CHIPPER SIDE AWAY FROM C-N-S MILL

SCALE: 1" = 12"

PANEL ⑩, OF $\frac{1}{8}$ SHEET STEEL, TO COVER THIS AREA. IT WILL BE ON THE OUTSIDE (OTHER SIDE OF VIEW BELOW). IT MAY BE HINGED WITH HINGE AS OTHERS ON THIS TUNNEL IF NECESSARY & SWINGING MOTION IS POSSIBLE FROM TOP OR OUTSIDE STRAIGHT EDGE ATTACHED TO 2×2 ANGLES. OTHERWISE SECURE IN PLACE WITH 5/16×18 OR LARGER HEX HD CAP SCREWS THRU SHEET & ANGLES.

PANEL ⑨, OF $\frac{1}{8}$ STEEL SHEET, IS RECTANGULAR IN SHAPE. IT IS TO BE ATTACHED TO A BLANK, CONTINUOUS, HEAVY DUTY STEEL HINGE WELDED TO ANGLE ON CHIPPER SIDE. IT EXTENDS VERTICALLY FROM THE 1/4 STL PLATE TO WITHIN 1/8" OF THE CONCRETE PAD.

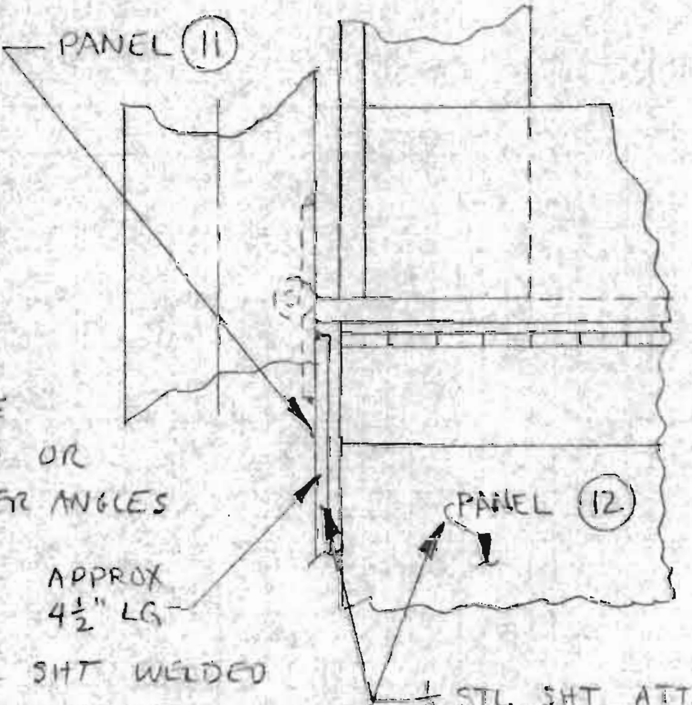


2×2×$\frac{1}{4}$ STL ANGLE MAY BE BOLTED OR WELDED TO OTHER ANGLES

APPROX 4$\frac{1}{2}$" LG

$\frac{1}{8}$ STL SHT WELDED INTO BOTTOM AREA BETWEEN CHIPPER, PAD, & CHIPPER SUPPORT I-BEAM AS SHOWN.

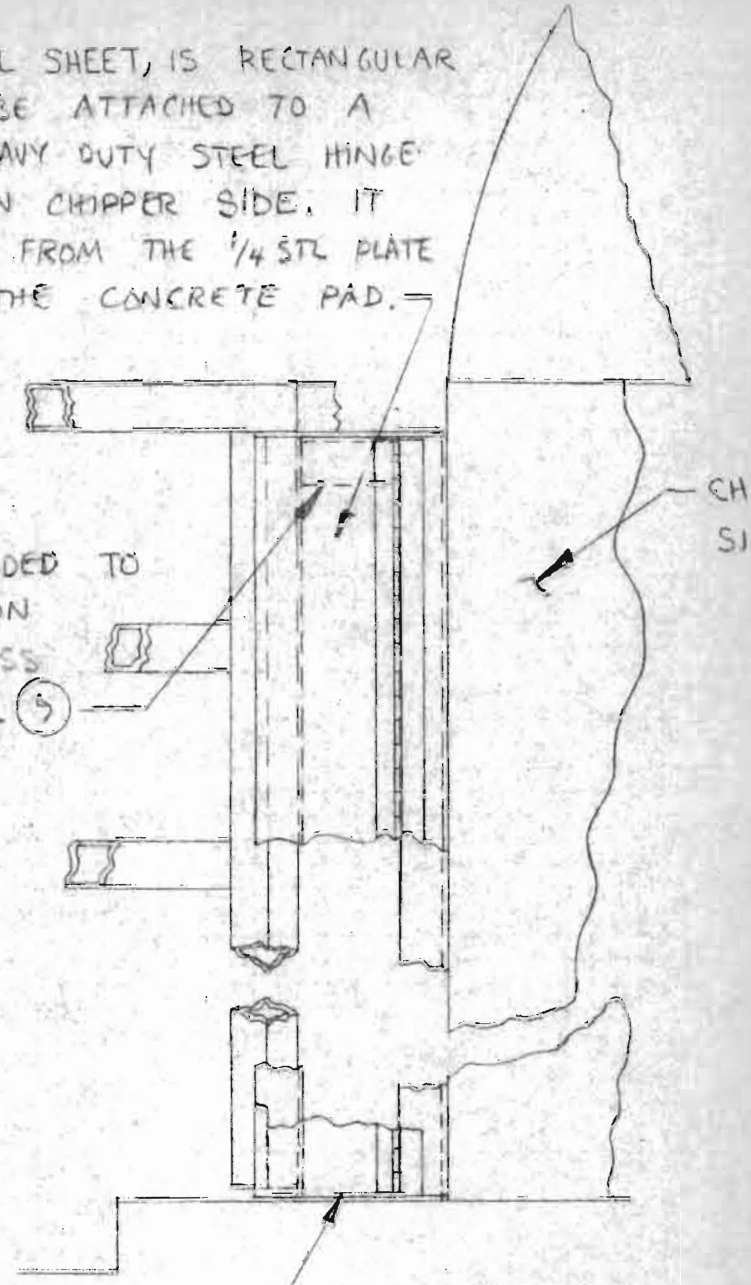
CLEAR CONDUIT $\frac{1}{8}$ - $\frac{1}{4}$"



$\frac{1}{8}$ STL SHT ATTACHED TO LENGTHS OF BLANK CONTINUOUS HINGE EXTEND TO WITHIN 1/8" OF PAD OR GROUND.

VIEW **K**

SCALE: 1=2



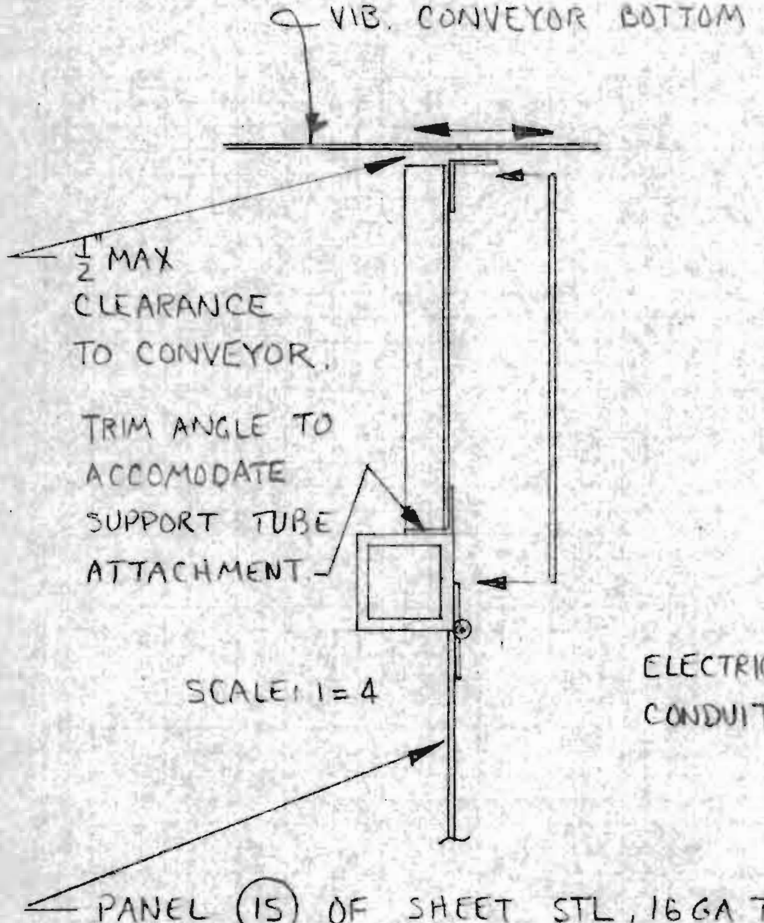
2X2X$\frac{1}{4}$ STL ANGLE WELDED TO $\frac{1}{4}$ STL PLATE & ANGLE ON TUNNEL FOR STIFFNESS & AS STOP FOR PANEL ⑨

$\frac{1}{8}$ MAX CLEARANCE TO CONCRETE PAD

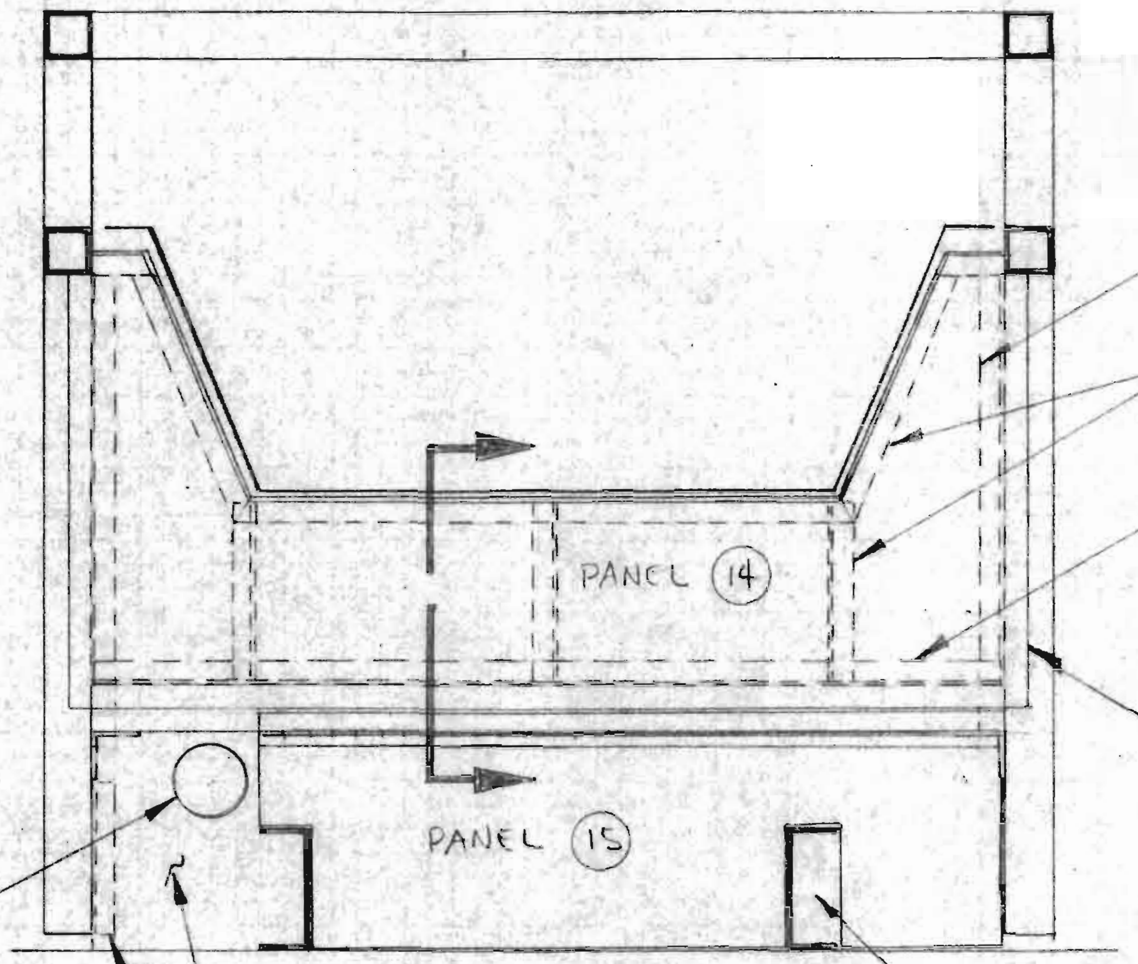
VIEW **J**

SCALE: 1$\frac{1}{2}$"=12"

SHT 9 OF 12



PANEL ⑮ OF SHEET STL, 16 GA TO $\frac{1}{8}$ THK, WELDED TO HEAVY DUTY BLANK CONTINUOUS STL HINGE & EXTENDING TO WITHIN $\frac{1}{8}$" OF STRUCTURE & PAD OR GROUND.



1x1x$\frac{1}{8}$ STL ANGLE WELDED TO VERTICAL TUNNEL TUBE, BOTH SIDES.

1x1x1/8 STL ANGLE WELDED TOGETHER. ATTACH BY TACK WELDING AT SIDES & BOTTOM

1x1x$\frac{1}{8}$ STL ANGLE WELDED TO HORIZONTAL SUPPORT TUBE.

STEEL SHT, 16GA TO $\frac{1}{8}$ THK, ATTACHED TO 1x1 FRAME. USE $\frac{1}{4}$-20 SCREWS, L'WASHERS, & NUTS OR MAY BE WELDED FOR MORE PERMANENCY, PANEL ⑭

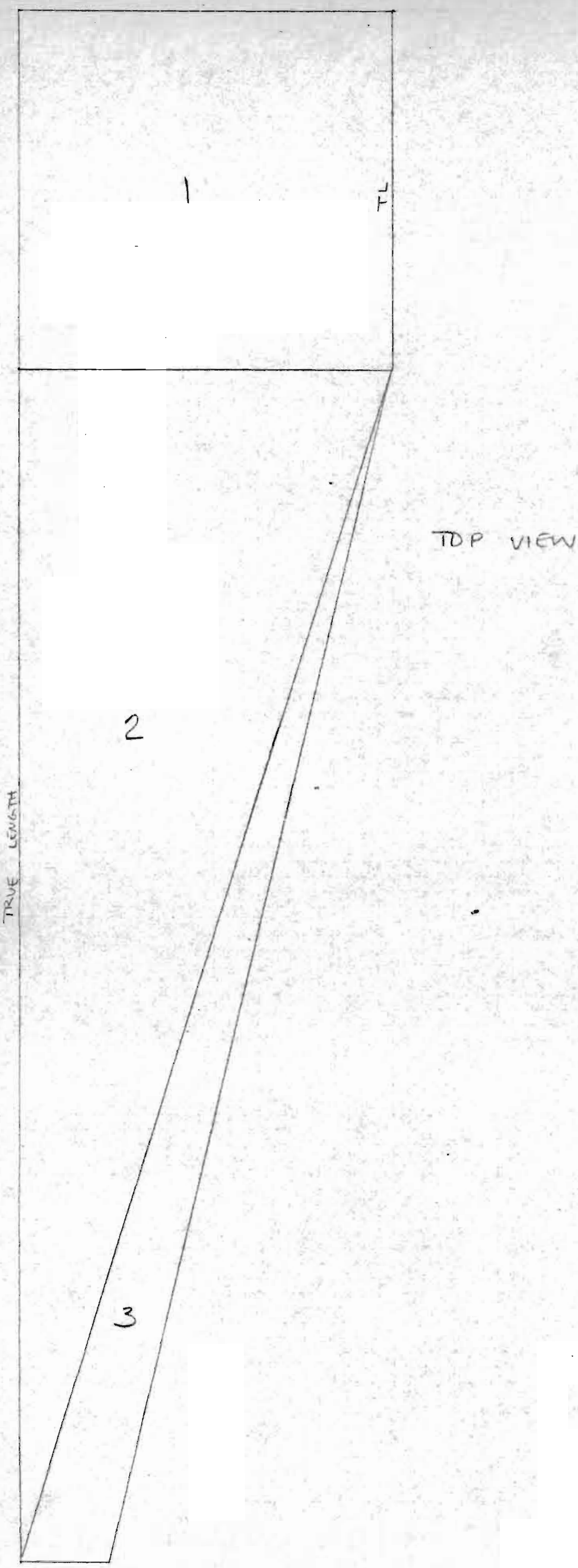
NOTE: THE ABOVE 1x1 FRAMING & PANELS ARE TO BE INSTALLED AT THIS LOWER SUPPORT LOCATION ONLY.

CLOSE WITH CONVEYOR BELTING. ATTACH AS ON 2 DIAGONAL TUBES.

SECTION L-L

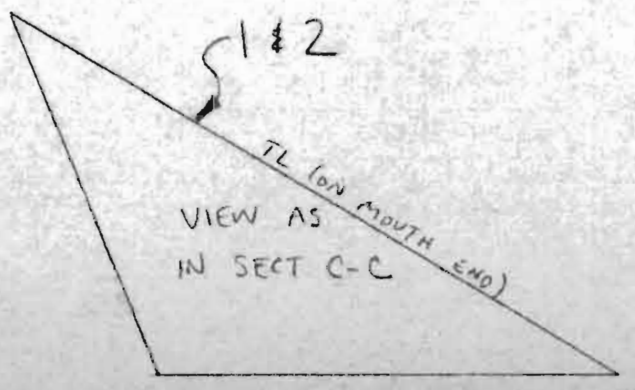
SCALE: $1\frac{1}{2}$"=12"

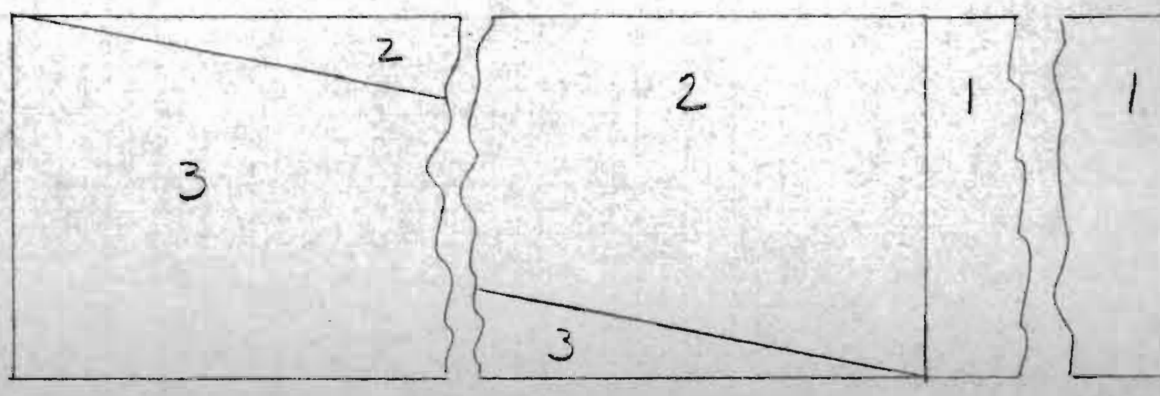
1x1x$\frac{1}{8}$ STL ANGLE TO FACILITATE CONVEYOR BELT ATTACHMENT TO COVER THIS AREA. ATTACH BELTING AS ON 2 DIAGONAL TUBES

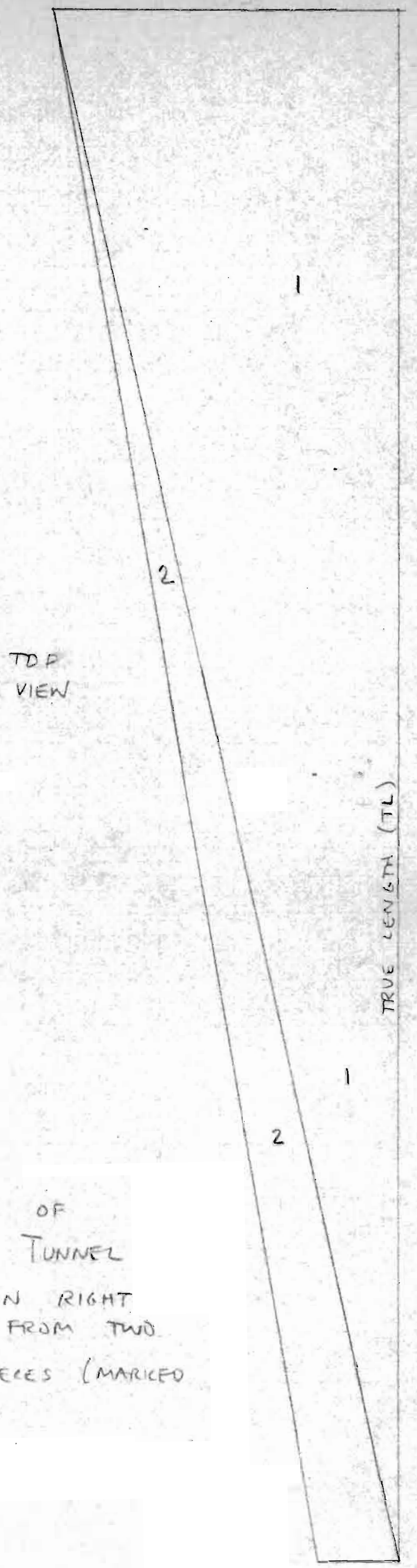


GEOMETRIC CONSTRUCTION OF THREE-VIEWS OF CHIPPER TUNNEL SHEET-METAL PIECE ON LEFT SIDE (GOING IN). MAKE FROM 3 PIECES, 1 RECTANGULAR & 2 TRIANGULAR. THEY ARE MARKED 1-RECTANGLE, 2&3-TRIANGLES ON THIS SHEET.

SCALE: $\frac{1}{4}$ APPROX

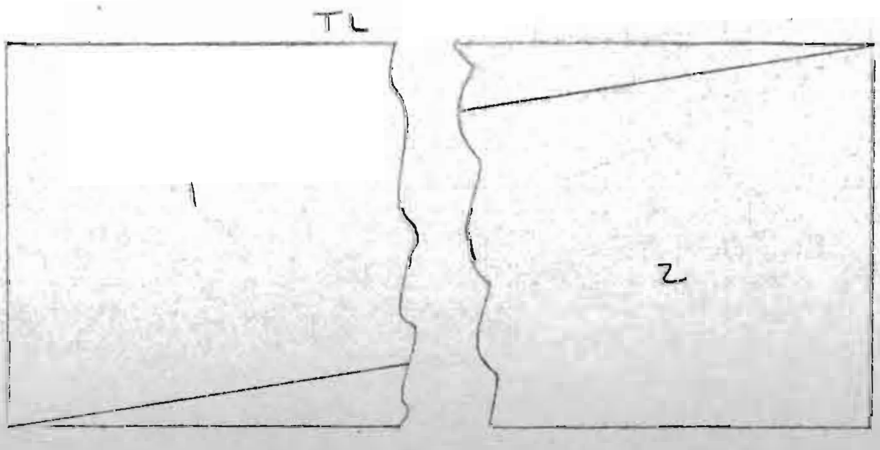


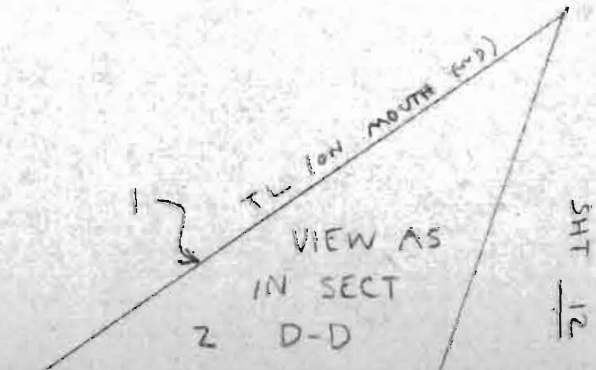


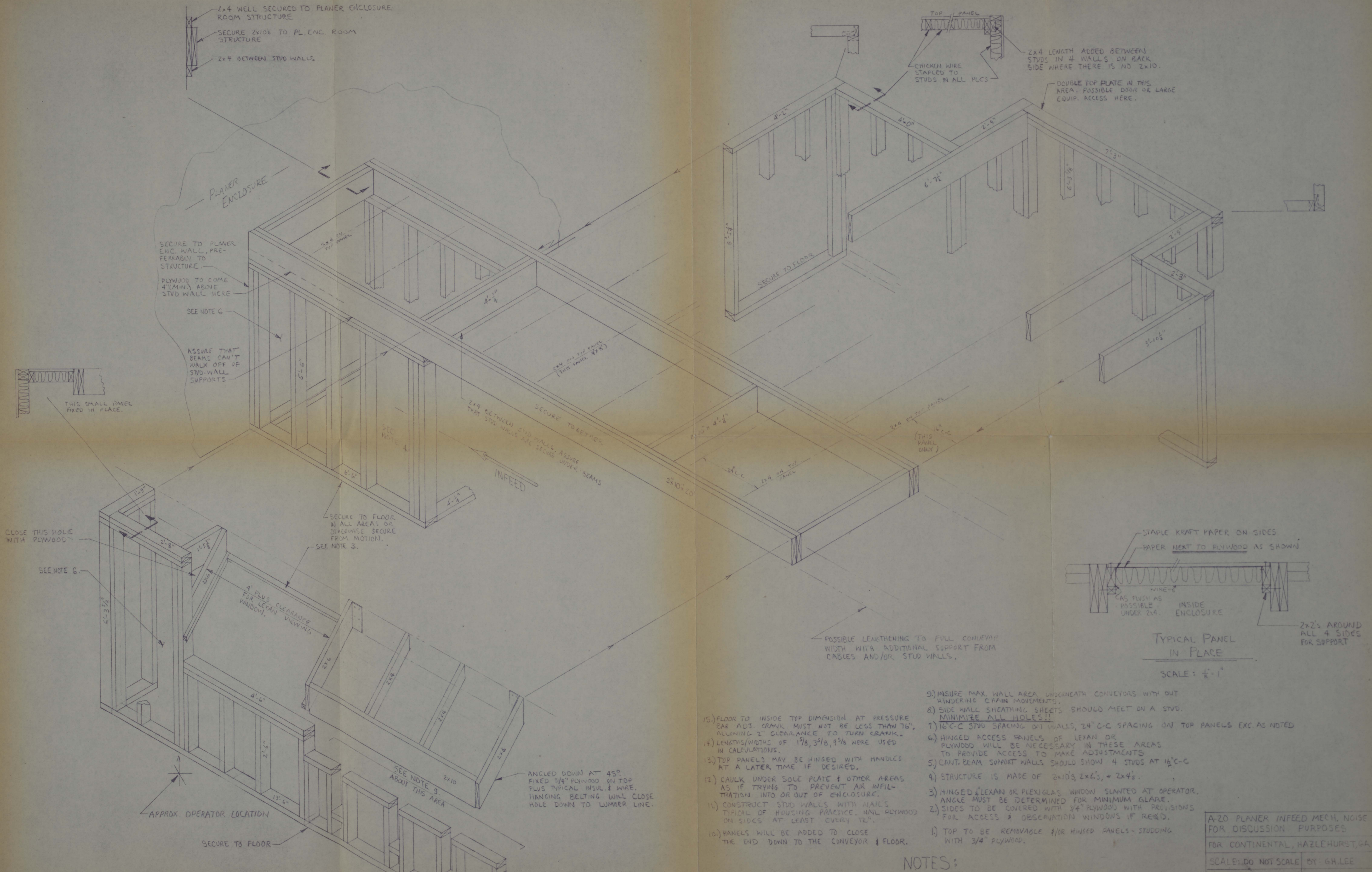


GEOMETRIC CONSTRUCTION OF
THREE-VIEWS OF CHIPPER TUNNEL
SHEET-METAL PIECE ON RIGHT
SIDE, (GOING IN). MAKE FROM TWO
TRIANGULARLY SHAPED PIECES (MARKED
1 + 2 ON THIS SHEET).

SCALE: $\frac{1}{4}$ APPROX.







15.) FLOOR TO INSIDE TOP DIMENSION AT PRESSURE BAR ADJ. CRANK MUST NOT BE LESS THAN 76", ALLOWING 2" CLEARANCE TO TURN CRANK.

14.) LENGTHS/WIDTHS OF 1⅝, 3⅝, 9⅝ WERE USED IN CALCULATIONS.

13.) TOP PANELS MAY BE HINGED WITH HANDLES AT A LATER TIME IF DESIRED.

12.) CAULK UNDER SOLE PLATE & OTHER AREAS AS IF TRYING TO PREVENT AIR INFILTRATION INTO OR OUT OF ENCLOSURE.

11.) CONSTRUCT STUD WALLS WITH NAILS TYPICAL OF HOUSING PRACTICE. NAIL PLYWOOD ON SIDES AT LEAST EVERY 12".

10.) PANELS WILL BE ADDED TO CLOSE THE END DOWN TO THE CONVEYOR & FLOOR.

9.) INSURE MAX. WALL AREA UNDERNEATH CONVEYORS WITH OUT HINDERING CHAIN MOVEMENTS.

8.) SIDE WALL SHEATHING SHEETS SHOULD MEET ON A STUD. MINIMIZE ALL HOLES!!

7.) 16" C-C STUD SPACING ON WALLS, 24" C-C SPACING ON TOP PANELS EXC. AS NOTED

6.) HINGED ACCESS PANELS OF LEXAN OR PLYWOOD WILL BE NECESSARY IN THESE AREAS TO PROVIDE ACCESS TO MAKE ADJUSTMENTS

5.) CANT. BEAM SUPPORT WALLS SHOULD SHOW 4 STUDS AT 16" C-C

4.) STRUCTURE IS MADE OF 2x10's, 2x6's, + 2x4's.

3.) HINGED ¼" LEXAN OR PLEXIGLAS WINDOW SLANTED AT OPERATOR. ANGLE MUST BE DETERMINED FOR MINIMUM GLARE.

2.) SIDES TO BE COVERED WITH 3/4" PLYWOOD WITH PROVISIONS FOR ACCESS & OBSERVATION WINDOWS IF REQ'D.

1.) TOP TO BE REMOVABLE &/OR HINGED PANELS - STUDDING WITH 3/4" PLYWOOD.

NOTES:

A-20 PLANER INFEED MECH. NOISE ENC.
FOR DISCUSSION PURPOSES

FOR CONTINENTAL, HAZLEHURST, GA

SCALE: DO NOT SCALE | BY: G.H. LEE

DATE: 5-5-80 | GA. TECH, MACON, GA