Information Request
Off Site Fly Ash
GP Fort Bragg Sawmill

Georgia-Pacific Corporation
Fort Bragg, California

December 2006

BBL®
an ARCADIS company

INCIDENT REPORT

July 1, 1984 - June 30, 1985

TYPE OF CALLS	NUMBER OF CALLS	TOTAL MAN HOURS
BRUSH FIRES		
city	1	2
Rural District	24	365
Out of District	1	3
Total	26	370
CHIMNEY FIRES		
city	33	311
Rural District	14	202
Total	47	513
STRUCTURAL FIRES		
city	12	364
Rural District	8	221
Out of District	4	73
Total	24	658
FALSE ALARMS		
City	7	38
Rural District	8	78
Total	15	116
TRUCK & TRACTOR WRECKS		
Rural District	1	5
Total	1	5
RESCUE		
City	6	58
Rural District	33	419
Out of District	5	83
Total	44	560
RESUSCITATION RESCUE		
City	59	422
Rural District	24	210
Total	83	632

TYPE OF CALLS	NUMBER OF CALLS	TOTAL MAN HOURS
MOTORCYCLE WRECKS		
Rural District	3	28
Total	3	28
CAR FIRES		
City	10	83
Rural District	11	117
Total	21	200
SMOKE INVESTIGATIONS		
City	7	44
Rural District	3	25
Total	10	69
FIRE MENACE STANDBY		
City	6	42
Rural District	4	25
Total	10	67
MISCELLANEOUS		
City	15	198
Rural District	9	115
Total	24	[illegible]
TOTAL CALLS		
City	156	1562
Rural District	142	1810
Out of District	10	159
Total	308	3531

CMP

Bob Tancreto
Pile

July 8, 1985

Candi M. Parker

Port Bragg Shavings Company Fly Ash -- Soil Amendment Program.

On June 26, 1985, I inspected the area on the McGuire Ranch located on Bald Hill Road off Pudding Creek Road, north of Port Bragg. See attached location map. The 80 acre ranch is currently using approximately 140 cu. yards per day of fly ash generated at the Georgia Pacific Hill. The ash is delivered by the Fort Bragg Disposal Company. which I observed today.

At the present time there is not an immediate threat to vater quality, however, we should get some additional information on the soil amendment project.

1. When will fly ash now being stockpiled be spread and disked into the soil.
2. Application rates of fly ash.
3. Description and location of all nearby wells.
4. Description of mitigation measures 'to protect Virgin Creek (tributary to Pudding Creek) from discharges of waste.

CMP:wg

Contact Jerry Davis MCHD

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

Interoffice Communication

TO: Bob Tancreto A → SWRCB
File

DATE: July 19, 1985

FROM: Candi M. Parker

SUBJECT: Fort Bragg Shavings Company Fly Ash - Soil Amendment Program

On June 26, 1985, I inspected the area on the *McGuire Ranch located on Bald Hill Road off Pudding Creek Road, north of Fort Bragg. See attached location map. The 80 acre ranch is currently using approximately 140 cu. yards Per day of fly ash generated at the Georgia pacific Mill. The ash is delivered by the Fort Bragg Disposal Company, which I observed today.

At the present time there is not an immediate threat to water quality, however, we should get some additional information on the soil amendment project.

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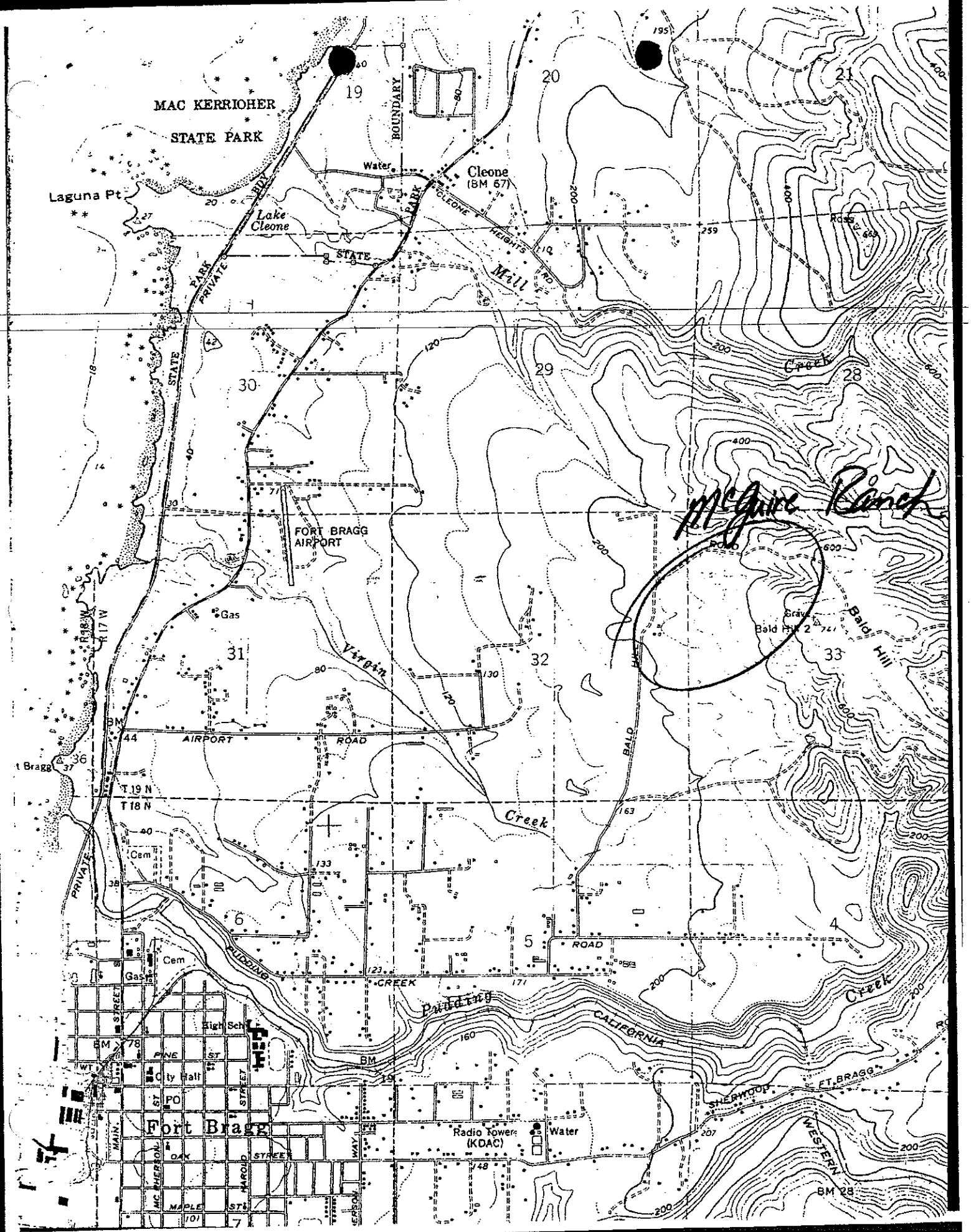
2. Application rates of fly ash.
3. Description and location of all nearby wells.
4. Description of mitigation measures to protect Virgin Creek (tributary to Pudding Creek) from discharges of waste.

Candi

CMP:wg

*Jas I McGuire
22501 Bald Hill Road
Ft. Bragg Cal 964-3060


MAC KERRIOHER
STATE PARK
Laguna Pt
Lake Cleone
Water
Cleone
(BM 67)
BOUNDARY
CLEONE HEIGHTS RD
STATE PARK
PRIVATE
STATE
Mill Creek
FORT BRAGG AIRPORT
Gas
Virgin Creek
AIRPORT ROAD
BALD HILL ROAD
Bald Hill
Bald Hill 2
Grave
McGuire Ranch
T 19 N
T 18 N
R 18 W
R 17 W
Cem
Gas
PUDDING CREEK
Pudding Creek
CALIFORNIA
FT. BRAGG
SHERWOOD
WESTERN
High Sch
City Hall
PO
Fort Bragg
MAIN
MC PHERON
OAK
MAPLE
HAROLD
STREET
WAY
Radio Tower
(KDAC)
Water
BM 28

STATE OF CALIFORNIA

MINI-MEMO

STD 100-B (REV. 9-70)

TO: Ed [illegible]
Madera County
Attn: Ford [illegible]

SUBJECT: ash

file 6P-Ft [illegible]

DATE 8/15/85

MESSAGE

Ed — These are cautions from the underlying regulations. It is dependent on the Regional Board judgement as to whether a waste is being "disposed" or used as a "soil amendment"; Good faith effort on the user as to proper application rates, cover, etc helps determine whether it is a "soil amendment".

RETURN TO

SIGNED ► Susan Warner

ADDRESS

PHONE

REPLY

SIGNED ►

ADDRESS

DATE

SEND PARTS 1 AND 3 INTACT — PART 3 WILL BE RETURNED WITH REPW

OSP

[illegible] south of
Pearl Lane, off [illegible]
gravel road, where
antispiled amuds mixed
conifers [illegible] setting.

S

F

CERTIFIED - Return Receipt Requested

August 22, 1385

Sue O'Leary
Forest Hydrologirt
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Ms. O'Leary:

Resent changes to Subchapter 15 of Title 23, Chapter 3 of the California Administrative Code permit the disposal of incinerator ash at Class III disposal sites if the State Department of Health Services (DOHS) determines that the ash need not be managed as a hazardous warte. Since DOHS **has made** this determination relative to Georgia-Paclflc's ash, then this waste may be disposed of under the current regulations at an approved Class III landfill.

The Regional Board staff considers the fly ash generated at Georgia-Pacific to be a waste. Under that consideration, the current disposal 'method for your fly ash wastes is contrary to provisions of your waste discharge requirements and the new Subchapter 15 regulations. Accordingly, Georgia-Pacific must cease inappropriate disposal of this waste. Inappropriate disposal Includes arrangements to use the waste as a soil amendment where the Regional Board has not made a finding that. such application will **be** according to best management practices, and considered the need for waste discharge requirements at any soil amendment site. Alternative disposal at a Class 111 site, or other approved disposal techniques should be commenced in a timely fashion. In addition, you are hereby requested to submit a technical report pursuant to Section 13267(b) of the Porter-Cologne Water Quality Act describing the daily ash waste production rate and your interim plans for appropriate disposal of this waste. We recognize that you will nerd additional time to develop your long-term ash waste disposal plans, and expect you to include an estimate of the time required to develop those plans.

The Regional Board staff is not opposed to designation of this waste as a nonhazardous, decomposable waste. This would permit use of this material as a soil amendment pursuant to the new Subchapter 15 requirements, but such use will require a demonstration to the Regional Board that studies have been made concerning appropriate... application rates, seasons of application, application and incorporation measures, and drainage controls specific to each site. Further, the Regional Board must he satisfied that a good faith effort will be made to menage the fly ash as a soil amendment at each site.

Past disposal practices of this material continue to threaten water quality. In order to mitigate effects from these past practices, your technical report should provide the Regional Board with a list of disposal site; where fly ash has been stockpiled or deposited, the volumes deposited, and measures that will be used to prevent a discharge Of this material to waters of the state. The technical report should be received by this office on or before September 15, 1985.

I would be glad to meet with you concerning the fly ash disposal question if that would assist you in determining your final ash waste disposal method. Please contact Susan Warner of my staff if you have any questions in this matter.

Sincerely,

David C. Joseph
Executive Officer

cc: Jerry Davis, Mendocino County Health Department, Ukiah
Ed Bridges, Mendocino County Health Department, Fort Bragg
Fort Bragg Shavings, Incorporated

P 485 226 421
RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Sue O'Leary
Georgia-Pacific Corporation
Street and No.
90 West Redwood Avenue
P.O., State and ZIP Code
Fort Bragg, CA 95437

PS Form 3811, July 1983

DOMESTIC RETURN RECEIPT

SENDER: Complete items 1, 2, 3 and 4.
Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☒ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Sue O'Leary
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
226 421

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X

7. Date of Delivery
AUG 23 1985

8. Addressee's Address (ONLY if requested and fee paid)

AUG 26 '85
WATER QUALITY CONTROL BOARD REGION 1

a Georgia-Pacific Corporation
90 West Redwood Avenue
Fon Bragg, California 95437
Telephone (707) 964-5651

August 30, 1985

Mr. Robert F. Swan
Deputy Director
Air Pollution Control
County of Mendocino
Courthouse
Ukiah, CA 95482

Dear Mr. Swan:

After our meeting of August 21, 1985 regarding fly ash, we have initiated the following actions for the Bald Hill and Canyon Road sites in response to concerns expressed by you and Messrs. Koppel and Bridges:

1. Met with Messrs. Foxx and Johnson and emphasized that fly ash material should be used as a soil amendment and not as fill material.

2. Discussed the airborne particulate prohlem at the two locations (Bald Hill and Canyon Road) with Messrs. Foxx and Johnson and initiated the following actions:

   Bald Hill - Mr. Johnson contacted the property owner and requested that ash material he spread and disked into the ground as soon as possible. Material is being spread this week (8/26-8/31) by the property owner. Georgia-Pacific has provided water trucks to keep the ash wet to help the property owner in spreading the material. The property owner expects to begin disking the material into the ground the first week of September.

   Canyon Road - Mr. Johnson made arrangements for piled ash to be spread over the ground surface. Georgia-Pacific spread lignin solution over the ash to form a crusted surface. Crust surface will keep fine particulates from blowing so long as people and machinery are kept off. Mr. Johnson is making arrangements with property owner to cap off site.

3. A call was made to the Regional: Water Quality Control Board to find out if ash could be dfsposed at the woodwaste land-fill. Water Quality staff expressed reservation about the idea but would discuss it further with other Water Quality Control Board personnel and call back.

We hope that these actions ease the concerns that you have regarding these properties. We will continue to monitor land-owner activities at both sites so that we may give you an up-to-date report at our next meeting.

Sincerely,

Dow G. Jacobszoon

Dow G. Jacobszoon
Resource 'Manager
WESTERN WOOD PROD MFG
California Wood Products

DGJ:mm

cc:. J. A. Coon - G-P, Fort Bragg
S. J. O'Leary - G-P, Fort Bragg
Ed Bridges - County Health, Fort Bragg
David Koppel - County Health, Ukiah
Fort Bragg Shavings
William Craig - G-P, Portland

COMPLAINT FORM

Complainant: Laurie Simons Date 9/3/85

Address: Box Lane Phone No: 964-1921

Fort Bragg

Regarding: Fly Ash being dumped on property up the road from Simon

Date of Occurrence: 9/1 - present Time: AM

Description: Martinez property is covered w/ 1½ ft + of fly ash. Also, big pit filled w/ water

Who owns or operates the site? Martinez

If it is an industry, what business is conducted on the site? agriculture

Was the material/pollutant colored? yes What color? black/gray

Was the material or water foamy? no

Was the pollutant oily? no Is there a sheen to the water? no

Was there an odor associated with the pollutant? no

Were there any labels or names visible on the can, barrel, or truck? no

What volume of material is involved?

Other Agencies Notified: Mendocino County Health Dept.

Complaint Taken by Candi

Referred to

Action Recommended check out - inspection scheduled for 9/6/85 w/ Ed Bridges.

California Regional Water Quality Control Board
North Coast Region

Interoffice Communication

file – G-P, FA Bragg

TO: Bob Tancreto, File

DATE: September 10, 1985

FROM: Candi M. Parker

SUBJECT: Fly Ash Disposal. Fort Bragg. Mendocino County

On September 6, 1985, Ed Bridges, Mendocino County Health Department, and myself inspected the following locations where fly ash material is being disposed of by soil ammendment and/or landfill. The ash material is generated at the Gerogia Pacific Mill reportedly coordinated for disposal by Mr. Nog Johnson (Albert's Best), and picked up and delivered by Fort Bragg Disposal County.

McGuire Ranch - Bald Hill Road. Work is in progress to disc ash material into soil. Large shallow trenches have been excavated to receive ash. A water truck is utilized to control airborne material. The site bas improved since inspection of August 28, 1985. It does not appear that any new loads of ash have been delivered to this site.

Canyon Road Site 1

Ash has been spread on property, (estimated 2 acre) at a depth of five inches - four feet. Ash material was spread with lignin to control airborne material. A septic system and domestic well have been developed on this site for a single family residence. Should be interesting if they build a foundation on the fly ash.

Canyon Road Site 2

Property with (1–2 acres) has fly ash spread in various locations at depths of 10 inches to six feet. Very messy – no nearby wells or surface drainages.

Pearl Drive Site 1

Near Albert's Best - Property spread with ash 1 year ago, vegetaiton growing. No immediate problem.

Pearl Drive Site 2

Ash material placed in mounds in various locations on 1–2 acre site. Entrance to property has been blocked to prevent access.

Pearl Drive Site 3

Property is owned by a Mr. Martinez who was present at the time of inspection. He indicated the ash on his property will be utilized for a soil ammendment, he proposes to "grind" it into the soil within the next two weeks.

It appears that Mendocino County Air Pollution Control and Georgia Pacific will be monitoring some of the activities. See attached letters which I received from Ed Bridges today.

Candi

CMP:wyg

№ '033

COUNTY OF MENDOCINO
DIVISION OF ENVIRONMENTAL HEALTH
COMPLAINT, INVESTIGATION REPORT

DAVID C LONG R.S.
DIRECTOR

DATE 9/13	REFERRED TO Ed	DISTRICT NO. 4

SEP 19 '85

SUBJECT TITLE: Fly Ash

AGAINST OR ABOUT — Name: Mr Barker
Address: Turner Way — Phone:

BY — Name: Shirley Cianci'd
Address: — Phone: 964-4141

SUBJECT DESCRIPTION

Just found out the fly ash was just a couple of parcels away & she & another women are getting real concerned about it. Plants (loganberry) had a problem this year & may die from dust.

DISPOSITION OF CASE (Attach additional sheets if needed) — Date 9-13-85

Two Fly ash dump site on Canyon Dr.
Both areas demonstrate high volumes in small areas
Refer to WQCB
Refer to Air Quality Control - County.

✓ WQCB

DATE CASE COMPLETED — BY

COUNTY OF MENDOCINO
DIVISION OF ENVIRONMENTAL HEALTH
COMPLAINT, INVESTIGATION REPORT

DAVID C LONG R.S.
DIRECTOR

DATE	REFERRED TO	DISTRICT NO.
9/13	Ed	4

SUBJECT TITLE: Fly Ash

AGAINST OR ABOUT — Name:
Address: Turner Rd to Canyon Drive Area Phone:

BY — Name: Eleanor Ellison
Address: corner of Canyon & Turner Phone: 964-3936

SUBJECT DESCRIPTION

Thinks there may be some problem with this fine dust getting into water supply

DISPOSITION OF CASE (Attach additional sheets if needed) Date 9-13-86

Two Fly Ash Dump Sites — Canyon Dr —
Both areas demonstrate high volumes in small areas
Refer to WQCB

DATE CASE COMPLETED | BY

COUNTY OF MENDOCINO
DIVISION OF ENVIRONMENTAL HEALTH
COMPLAINT, INVESTIGATION REPORT

№ 034

DAVID C LONG R S
DIRECTOR

DATE 9/13	REFERRED TO Ed.	DISTRICT NO 5

SUBJECT TITLE: Barker Fly Ash Dumps

AGAINST OR ABOUT — Name: Barker
Address: _____ Phone: _____

BY — Name: Mr. Cebula
Address: 10541 Powers Lane Phone: 964-2830

SUBJECT DESCRIPTION

All the people out there are concerned about water supply as they are located below storage area. Just piling up not tilling under. Comes in in truck loads

DISPOSITION OF CASE [Attach additional sheets if needed] Date 9-17-85

Refer to WQCB + Humb Air Quality

FILE

Date 10/10/85
Georgia-Pacific
Fort Bragg

WATER QUALITY CONTROL BOARD
SEP 20 '85
☐ DJ ☐ SW
☐ BK ☐
☐ CJ ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JR ☐ REPLY
☐ FILE

Westglen FORM #70-406

DATE CASE COMPLETED 9-17-85 BY Ed B

MENDOCINO COUNTY MEMORANDUM

TO: NOrth Coast Water Quality Control

DATE: 9/13/85

FROM: Mendocino County Health Dept.
Fort Bragg Office

SUBJECT: Fly Ash

We will be sending any complaints that come into our office regarding the fly ash problem in this county to you for your information and action if necessary.

SEP 19 '85

SW

ORIGINATOR - DO NOT WRITE BELOW THIS LINE

SIGNED: Ed Bridges, Senior Environmental Health Officer

REPLY

DEPT. - LOCATION

SIGNED:

DATE / /

SEND PARTS 1 AND 2 INTACT - PART 2 WILL BE RETURNED WITH REPLY
3 - DETACH AND FILE FOR FOLLOW - UP

MENDOCINO COUNTY

Memorandum - Complaint

WATER QUALITY CONTROL BOARD REGION 1
OCT 1 '85

TO: Ed Bridges

DATE: 9/25/85

FROM:

SUBJECT: Fly Ash

☐ DI ☐
☐ BK ☐
☐ CK ☐
☐ BT ☐
☐ JR ☐
☐ BB ☐
☐ JR ☐ ☐ REPLY
☐ 964-2440

Against: Manual Martinez Property

From L. Dalli
32368 N. Mitchell Creek

G-P, Ft. Bragg Sawmill

Loads of flyash being dumped on property & has started drifting on wind - very concerned about water supply after episode w/Alberts best out in same area

MENDOCINO CWNTY

Memorandum –

WATER QUALITY CONTROL BOARD REGION 1

OCT 1 '85

TO: Shattuck

DATE: 9/25/85

964-2831

FROM:

SUBJECT: Fly Ash

Out Canyon Drive – several people had dumped on yard. Mill is giving ash to people saying good to put on driveway use as pot hole filler. Is very concerned about how it will effect health. wants to know what analysis is of it – will be in to review copy. Says that during summer it is a real nuisance

Refer to WQCB + Air Quality.

B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
WORTH COAST REGION

Interoffice Communication

TO: (1) Craig Johnson
(2) Bob Tancreto
(3) Candi Parker
(4) file - Georgia-Pacific, Ft. Bragg

DATE: October 2, 1985

FROM: Susan Warner

SUBJECT: Meeting nith Beorgia-Pacific, Ft. Bragg, and local agencies on ash.

On October 1, 1985, I met nith Sue O'leary, Dow Jacobzoon (both of Oeorgia-Pacific), Bob Swan (Air Quality), and Ed Bridges (Mendocino County Health) to discuss ash generation at the Fort Bragg mill and appropriate disposal.

I viewed two sites in Little Valley, both owned by Georgia-Pacific, which Georgia-Pacific intends to use as sites for soil amendment applications of their fly ash. One site (the upper site) would only be used to stockpile ash when the lower site was too wet to work. I gave provisional approval of use of these sites as an interim, emergency disposal area until October 18, as long as Georgia-Pacific operates the sites as soil amendment areas with a good faith effort.

I also informed Georgia-Pacific that they were out of compliance with our staff enforcement action (letter of August 22, 1985), which required a technical report pursuant to 13267(b) to be submitted by September 15. I again explained that such a technical report would entail consideration of alternatives (such as disposal at a Class III site, commercial briquetting, or soil amendment use). If the interim measure was to be soil amendment use. then I explained that a demonstration would have to be made that such a use is appropriate and will be properly managed. That is, Georgia-Pacific would have to submit soil data on the proposed sites, along with a management plan describing application rates. application methods, drainage management. cover crop, and other data to support use as a roil amendment to improve productivity of timberlands or agricultural lands. I emphasized that Georgia-Pacific's technical report should make it clear that the ash was to be used at a site for soil amendment purposes --- that any plans of using the area merely as a land disposal site would require more detailed site investigation and monitoring pursuant to subchapter 15 requirements.

Georgia-Pacific appeared to agree to submittal of the technical report by October 18, and agreed to send us a letter by October 4 requesting such an extension. I told Georgia-Pacific that it would expedite matter8 If the company would simultaneously send copies of the technical report to the local health department and

air quality staff. 1 told the company that we would evaluate the report and the local agencies concerns with the proposal in raking our determination of whether waste discharge requirements would be adopted or waived for any soil amendment use site (pursuant to subchapter 15).

At one time duriny the meeting, Sue O'leary again suggested that the ash is a by-product, not a waste. I told her and Jacobzoon that we considered the ash to be a waste, but that Georgia-Pacific could demonstrate that the material was being sold or transferred to another party for an approved use, and thls could be an acceptable alternative. However, most of the known past practices/disposal areas were not approved uses, and constituted improper disposal of wastes. Any by-product must be used according to its qualities and characteristics. Land filling with ash at unapproved landfills is not appropriate. Agricultural amendment is appropriate if the material is classified as a decomposable non-hazardous waste and managed under subchapter 15. Briquetting of the woodwaste ash to Kingsford or some other company would be acceptable to us if there is a written committment by Georgia-Pacific that all their ash will be accepted for this use. If the ash must be separated, then there will still need to be an ash disposal plan for whatever ash is not accepted by a briquetting company.

I believe that Georgia-Pacific intends to propose soil amendment use as both an interim (1-2 years), and possible long-term solution to the ash problem. I do not see any difficulties with this as long as sites are managed to improve soil productivity, and not as "dump" sites where lording rates of ash exceed the rate for which any soil benefit is gained. Once the loading rate is exceeded, then I believe the intent is to use the area as a land disposal site. Land disposal sites would require more rigorous standards for use under subchapter 15 than any soil amendment area. I also believe that Georgia-Pacific may no longer be using Nog Johnson or Don Foxx in any ash transfer schemes, and will keep the ash under Georgia-Pacific's control at all times. This would certainly be an improvement.

Key to the whole thing

I also inspected a11 of the known ash disposal sites in the area. except the school site. Since there are less than a dozen such rites, it seems likely that considerable ash has been dumped in other locations of which we are unaware. The sites I inspected were all the result of Don Foxx and Nog Johnson arrangements. The Mitchell site is one of the oldest and was used to improve pasturage. It appeared to work effectively, and there was good grass cover. The Pearl Drive mite across from Albert's Best apparently did not involve incorporation of the ash into the soil, and clover has established very patchily on this site. These are the only sites that showed revegetation.

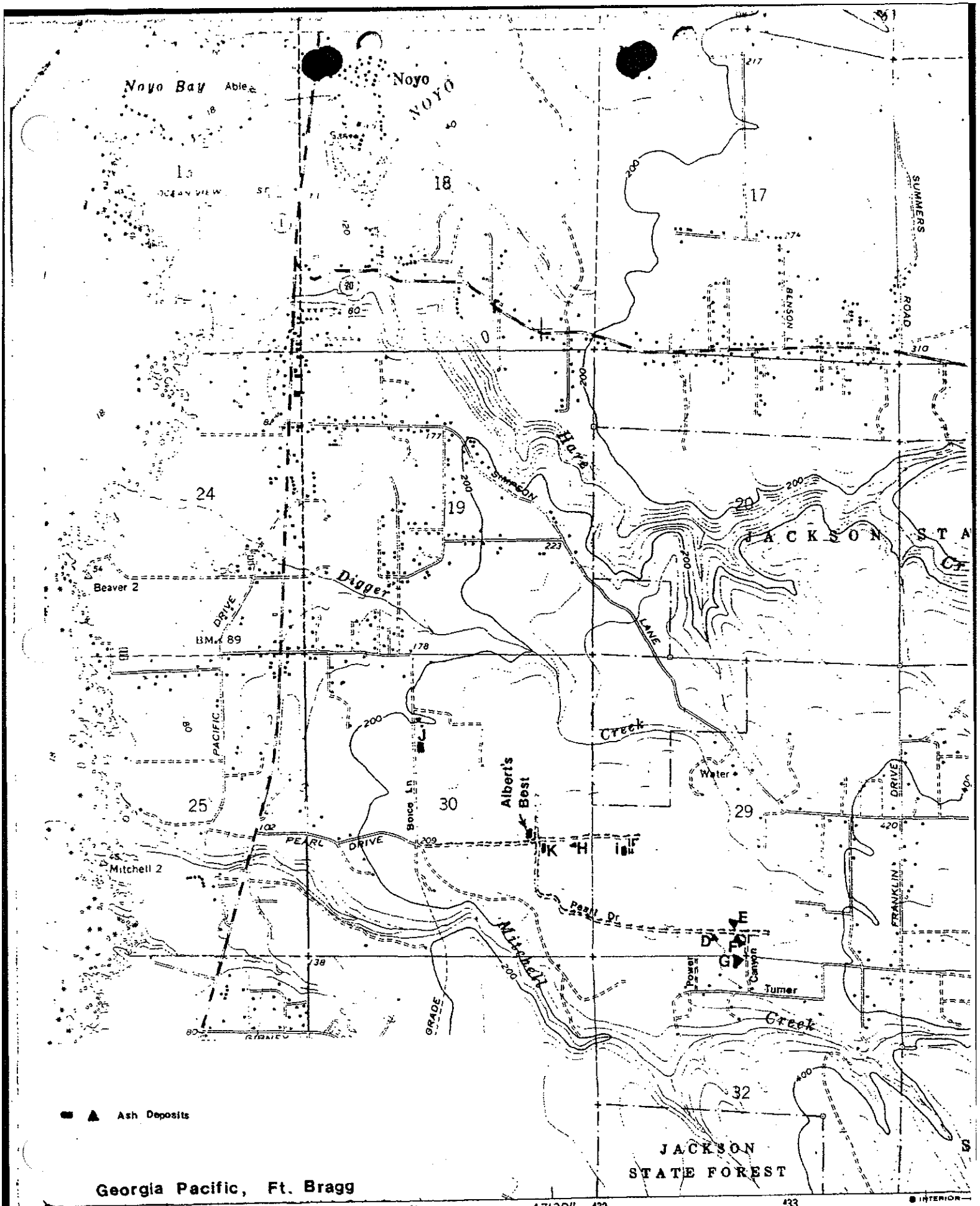
The newest site, denoted as "Sherwood Road", had received ash on

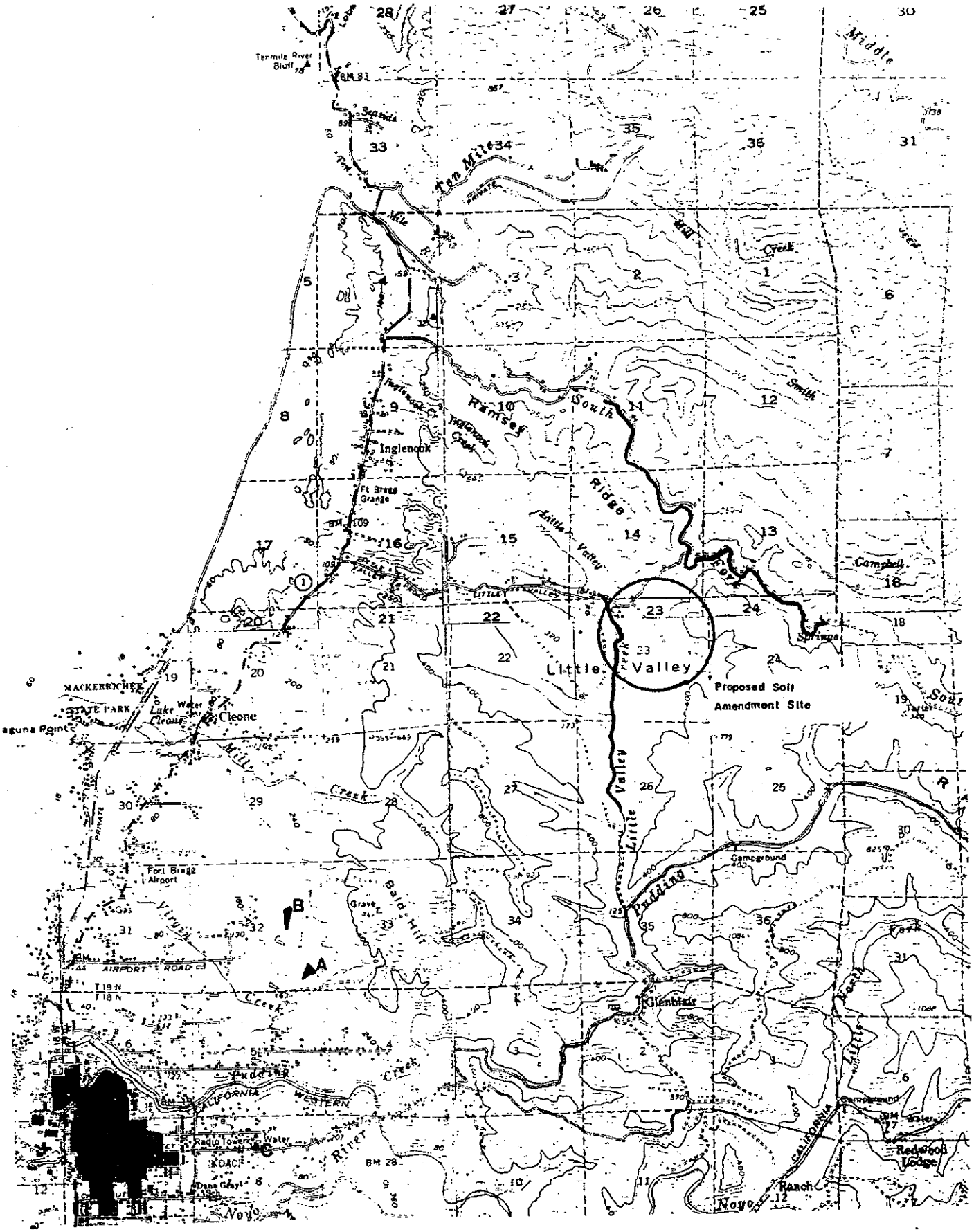
the day I Inspected and will continue to receive ash for two more days if the county health and air quality staff approve the operator's incorporation/covering procedures. He appeared to have received the ash with the understanding that he could use it to build up his lot to improve grade/drainage. I explained to him thrt the ash would decompose and he wouldn't gain any long term height improvements (he then asked abwt the Noyo dredge spoils and we cautioned him against such spoils which are loaded with sodium and tend to inhibit plant growth). It seems likely that Nog Johnson and Dan Foxx are not fully advising ash recipients of the problems and use of the ash. Also, the landowners are required by Georgia-Pacific to sign a release form saying that the landowners will use the ash as a soil amendment. I told Georgia-Pacific that this release form did not transfer Georgia-Pacific's responsibility to ensure proper disposal/use of the ash.

The sites listed on thr attached table and map threaten water quality this winter. Some disposal sites are over seven feet thick with ash, on sloping pygmy lands. Once it rains, the ash will probably runoff. Georgia-Pacific was informed that if water quality problems result, then they have ultimate responsibility to cleanup areas where their wastes were improperly disposed. Georgia-Pacific has rented a large discing machine (which they ray purchase if it works to incorporate the ash) and will be using the equipment on the Maguire Ranch site, followed by use on the Little Valley site. Judging by the other known ash disposal sites, it or some other equipment may be needed on the Pearl Drive/Canyan Drive sites.

ASH DISPOSAL SITES

Site Designation	Location	Estimated Volume	Water Quality Threat	Comment
A Maguire Ranch 1	Bald Hill Rd.	15 acres?	storm runoff	Needs incorporation/stabl. Equipment on-site; ash windrowed
B Maguire Ranch 2	Bald Hill Rd.	300 yds?	storm runoff	Needs to be spread, incorporated and stabilized.
C Sherwood Rd.	Bal/Sherwood Rd.	120 yds?	storm runoff	Equipment on-site to incorporate material;must be timely (Leonard Brown).
D Pearl 1	Pearl Drive-south	one load	unknown	on pygmy;small present for mixing
E Pearl 2	Pearl Drive-north	unknown-lots	storm runoff	on pygmy/transitional, spread; needs incorporation.
F Pearl/Canyon	Corner Pearl&Canyon	200 yds?-to 7 ft	storm runoff	neighbors nearion pygmy/transitional needs stabilization/removal
G Barter 1	Middle of Canyon Dr.	400 yds?	storm runoff	some soil covering/needs stabilization neighbors close.
H Pearl 3	Pearl Dr.	300 yds?	storm runoff	neighor close;some spread and some piled; needs incorporation
I Martinez	Pearl Dr.	400 yds?	storm runoff/leachate	landfill proportions;removal and stabilization may be required.
J Mitchell	Dolce Lane	unknown	none	stabilized/revegetated
K Albert's Dump	Pearl Dr.	unknown	none	partially stabilized and revegetated


Noyo Bay
Able
Noyo
NOYO
18
17
SUMMERS
ROAD
BENSON
Hare
Simeon
24
19
20
JACKSON STA
Beaver 2
Digger
DRIVE
BM 89
LANE
Creek
PACIFIC
25
30
Boice Ln
Albert's Best
Water
29
PEARL DRIVE
Mitchell 2
Pearl Dr
Mitchell
E
D
F
G
Power
Canyon
Turner
Creek
GRADE
FRANKLIN
DRIVE
32
Ash Deposits
JACKSON
STATE FOREST
Georgia Pacific, Ft. Bragg
CASPAR 0.7 MI.
MENDOCINO 5.8 MI.
(MENDOCINO)
1252 IV SE
431
47'30"
432
433
INTERIOR
SCALE 1:24 000


Tenmile River Bluff
Ten Mile
Middle
Inglenook
Ft Bragg Grange
Ramsey
South
Ridge
Little Valley
Campbell
Smith
Little Valley
Proposed Soil Amendment Site
MACKERRICHER STATE PARK
Lake Cleone
Cleone
Laguna Point
Mill Creek
Fort Bragg Airport
Virgin Creek
Bald Hill
Grave
AIRPORT ROAD
Campground
Pudding Creek
Glenblair
Little Pudding Creek
CALIFORNIA WESTERN
Radio Towers
KDAC
Dam Gayt
Noyo River
Noyo
Ranch
Redwood Lodge
Water
Spring

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

October 2, 1985

OCT 4 '85

☐ DJ ☐
☐ BK ☐
☐ CJ ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JR ☐ ☒ REPLY
☐ ☒ FILE

Dr. David C. Joseph
California Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Dr. Joseph:

Georgia-Pacific Corporation has been actively pursuing both interim and long-term use for its flyash material as well as addressing concerns raised by several local agencies regarding soil amending practices employed by local landowners. I have enclosed a copy of a letter to Mr. Bob Swan which outlines several steps the company has taken regarding the local landowner situation. These sites have received the majority of flyash material. I refer you to Don Foxx or Carl Johnson of Fort Bragg Shavings for a complete list of sites as they have been overseeing the placement of this material. I also request an extension of time for the technical report to October 18, 1985.

Georgia-Pacific Fort Bragg

In order to prevent future problems, the company would like to propose several interim as well as long-term measures for the handling of the flyash material.

First, we would like to have our woodwaste disposal site approved for the disposal of this material in the trenches. This site would be used on an emergency basis and only until another Class III landfill can be permitted. We would propose to layer the pits with woodwaste, ash, woodwaste, etc. and ensure that a layer of woodwaste or soil was in place over the ash at the end of each day.

The other interim solution that we would like to begin next week is a soil amending project on our property in Little Valley (eight miles north of Fort Bragg). The company owns 432 acres of pasture land of which, approximately 400 acres could be amended. Currently, the company generates between 720 and 1,000 cubic yards of flyash per week. It is estimated that 27 acres per year would be amended. This material would be spread to a thickness of approximately one foot, disked into the ground and seeded with either rye grass or subclover. Bill Brooks, County Farm Advisor, estimates that by applying the ash, the grazing crops for cattle could be increased two to three times the current production.

While we are currently in a "state of emergency" and are anticipating approval by Water Quality for this project on an interim basis, we anticipate operating the site for several years and are close to investing in the proper farm equipment to do the job. A more complete technical report will be sent to you by October 18, 1985 detailing proposed operations for the next year.

Finally, our long term solutions currently include soil amending when weather and operating conditions permit, the siting a of Class III landfill for the flyash material, as well as the possibility of briquetting the ash from the primary collectors. We are currently attempting to locate a site within a ten mile radius of the plant for a new'landfill and hope to have one permitted within six months. We have sent additional samples to Kingsford Charcoal for further analysis to see if the ash from the primary collectors meets their specification.

I must apologize for not responding to your letter sooner, and I hope that this letter reassures you that we are indeed concerned about how our flyash material is being handled and that we are seeking solutions to the problem in a speedy manner.

Sincerely,

Sue O'Leary

Susan J. O'Leary
Forest Hydrologist
WESTERN WOOD PROD MFG
California Wood Products

SJO:mm

Encl.

Certified- Return Receipt Requested

October 4, 1985

Sue O'Leary
Georgia-Pacific Corwration
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Sue:

This letter is to confirm the discussions we had during the meeting of October 1, 1985, with yourself, Dow Jacobzoon, Bob Swan, and Ed Bridges on the fly ash disposal plans.

As I indicated to you and to Dow. temporary use of the Little Valley sites we visited on October 1 will be allowed as long as Georgia-Pacific follows appropriate practices to use the ash as a soil amendment. The temporary use should not continue beyond October 18, 1985, unless you have submitted a satisfactory soil amendment management plan for the site. We agreed that Georgia-Pacific would request a tlme extension to develop the technical report called for in our August 22 letter, but that the extension would be no later than October 18, 1985.

As I discussed with you and Dow at our meetings, the Regional Board staff considers the ash a waste produced during power production operations. This waste must be disposed at approved Class III landfill sites, unless the Regional Board approves its use as a soil amendment, or firm arrangements are made to merchandise all of the ash as an appropriate and legal product, such as in briquetting. Sale or transfer of the ash to parties for uncontrolled distribution/disposal/usage are not appropriate and does not release Georgia-Pacific from responsibility for the disposal of the ash or from liability from improper use of the material, such as land-filling or stockpiling the ash at unapproved Class III sites.

Approval as an agricultural soil amendment would require submittal of technical informetion as outlined in our August 22, 1985 letter. Again, we are not opposed to soil amendment usage of the ash; however, Georgia-Pacific must demonstrate a good faith effort to use the ash in this manner. This demonstration Includes assessment of the soil which will receive the ash amendments, appropriate loading rates to improve land productivity. and management practices which will be used to avoid nuisance and water quality impairment.

Georgia-Pacific may determine that interim disposal of the ash will be through use as a soil amendment. The technical report will need to include a time schedule for continuing the interim use, and a time schedule. including progress reports, for developing the final diswsal solution.

We look forward to receiving your technical report, and will coordinate closely with county agencies in the review of your proposal. Please do not hesitate to contact me if you have any questions in this matter.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

cc: Bob Swan
Ed Bridges
Jerry Davis

P 193 925 855

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

P.O. 1984-446-014

Sent to Sue O'Leary
Georgia-Pacific Corporation
Street and No.
90 West Redwood Avenue
P.O., State and ZIP Code
Fort Bragg, CA 95437

PS Form 3811, July 1983

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☒ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery. OCT 8 1985

3. Article Addressed to:
Sue O'Leary
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

4. *Type of Service:*
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
925 855

Always obtain signature of addressee or agent and DATE DELIVERED.

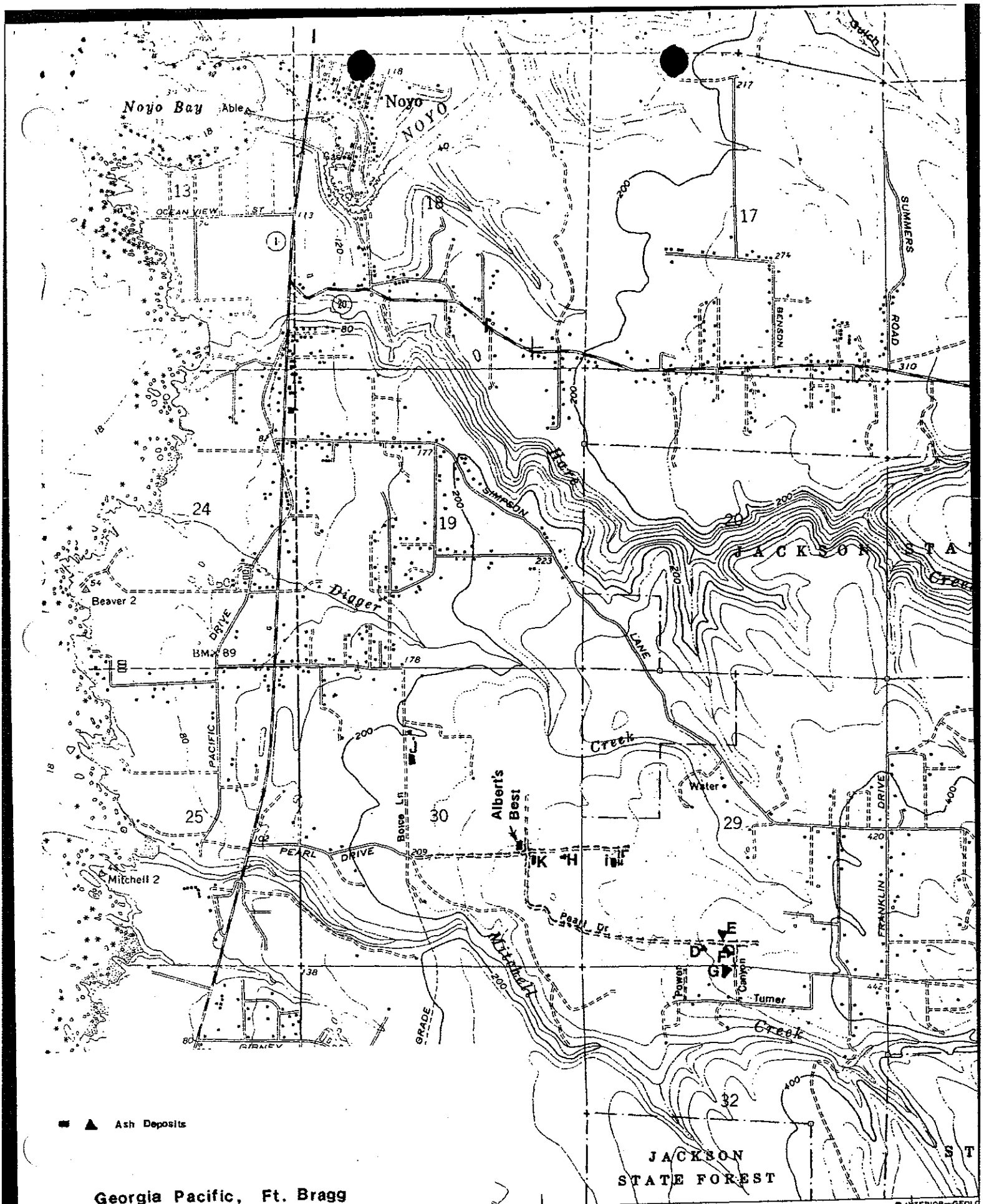
5. Signature – Addressee
X

6. Signature – Agent
X Mark Pekoy

7. Date of Delivery
OCT 8 1985

8. Addressee's Address *(ONLY if requested and fee paid)*

DOMESTIC RETURN RECEIPT


Noyo Bay
Able
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NOYO
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SUMMERS ROAD
BENSON L
Hare
SIMMSON
Digger
Beaver 2
BM 89
DRIVE
PACIFIC
LANE
Creek
Water
Albert's Best
Boice Ln
PEARL DRIVE
Mitchell 2
Pearl Dr
Mitchell
GRADE
GIRNEY
Power
Canyon
Turner
FRANKLIN DRIVE
JACKSON STATE FOREST
Ash Deposits
Georgia Pacific, Ft. Bragg
CASPAR 0.7 MI.
MENDOCINO 5.8 MI.
(MENDOCINO)
1262 IV SE
SCALE 1:24 000
431
47'30"
432
433
INTERIOR—GEOLO

CHLIFORMIR REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

Interoffice Communication

18 October 1985

FROM: Albert Wellman

TO: 1) Sue Warner

2) Frank Reichmuth

file G-P, Ft Bragg

SUBJECT: Georgia Pacific Flu Rsh Report

I received a telephone call from Sue O'Leary at 1345 this date. She said theu were a little late in getting the "flu ash report" together; and she wondered if it would be alright if it arrived after 1700. She suggested that their helicopter Pilot could drop it off on his way to the city for the week end, but she didn't expect that he would arrive here until about 1800. She proposed to slip it through the mail slot if it could be operated despite its reversed Position. In the event it could not be Put through the mail slot, she said they would drop it off at the Post office where it would be delivered with Monday's mail. I assented to those alternatives.

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-1651

October 18, 1985

Dr. David C. Joseph
California Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

OCT 18 1985

Dear Dr. Joseph:

Enclosed you will find the Technical Report for the soil amending project that Georgia-Pacific is proposing for its pasture land in Little Valley. This document outlines the company's plan for the next two years. We expect changes to occur to the plan as more information becomes available regarding soils, vegetation and operating experience.

Georgia-Pacific believes that the procedures, as outlined in this report, should be considered Best Management Practices for the amending of the ash material and that Waste Discharge Requirements not be issued. The use of buffer zones around the drainages in the active operating areas will prevent direct deposition of material into the streams and the operating procedures for seasonal variations as outlined in the report will ensure proper handling and incorporation into the soil.

Additionally, Georgia-Pacific intends to conduct further soil studies in the active operating area and begin a water monitoring program in the stream adjacent to the operating area.

I am sure that this report will stimulate further questions and I'd like to schedule a meeting with your staff to review the proposal within the next two weeks. In the meantime, if there are any questions, please call.

Sincerely,

Sue O'Leary

Sue O'Leary
Forest Hydrologist
WESTERN WOOD PROD MFG
California Wood Products

SOL:mm
Encl.

GEORGIA-PACIFIC CORPORATION'S

LITTLE VALLEY SOIL AMENDING PROJECT

Georgia-Pacific Corporation's California Wood Products Manufacturing Division is located in Fort Bragg, California approximately 140 miles north of San Francisco. The Division's main product is lumber, manufactured from Redwood or Douglas-fir trees.

A major by-product of lumber production in Georgia-Pacific's mi11 is bark which is further processed by hogging (chopping into smaller pieces). This material is then burned for fuel in a wood fired boiler. The burning of this material for the production of steam and electricity is energy conserving for the facility as well as an economical and environmental practice. A residual ash is produced from the burning of the hog fuel and is collected in a cone hopper prior to final disposition. The amount of ash has increased significantly since the addition of a new boiler, the dismantling of the dutch ovens and the elimination of ash reinjection back into the boiler system. The company sees the use of wood for fuel as a continuing factor in the Fort Bragg operation and is evaluating old and new ideas for the disposition of the residual ash as a useful by-product.

This report will outline the proposed use of wood ash as an agricultural fertilizer, liming agent and soil amendment on 330 of the 430 acres of pasture land owned by Georgia-Pacific in Little Valley California.

WOOD ASH AS A FERTILIZER, LIMING AGENT, SOIL AMENDMENT

The use of wood ash as a fertilizer has been known for many years. Generally, wood ash is considered to be a potassic fertilizer as it supplies potash (K_2O) to plants and also has value as a liming agent. The 1938 Yearbook of Agriculture (1), states that "... in addition to the fertilizer value they contain, both the potassium and lime carbonate in wood ashes are beneficial on acid soils." While the fertilization, liming and soil conditioning of soils is not very common in Northern California agriculture, it is still a viable practice.

Georgia-Pacific, in utilizing this material for agricultural use, will be able to not only eliminate its daily ash problem but utilize the ash to adjust soil pH, and add small amounts of nutrients so that the pasture land soils in Little Valley, which are currently providing minimal quality feed for cattle, will be more productive. In order to support a grass and clover crop for cattle feed, the pH of the soil at Little Valley must be adjusted upward from its current 5.1 to a level between 6 and 6.5.

According to Naylor and Johnson (2) in their report on Boiler Ash as a Fertilizer, "Soil pH must be adjusted to appropriate levels specific to each crop. In general, crops respond better to neutral soils than to acid soils and, hence, liming of acid soils is generally recommended for optimum yields. The increased yield potential of new varieties often cannot be achieved if desirable soil pH is not maintained (4)". After viewing the Little Valley site this past month, Bill Brooks, Farm Advisor for Mendocino

County, stated that the soil amending project would help increase the soil pH and should yield pasture crops of a least 2-3 times current production (1985 personal communication).

In a discussion with Lewis Naylor, Research Engineer, Cornell University, on the potential of water pollution from leachates derived from the wood ash, he indicated that the only nutrient that could be likely to leave the ash and migrate to a water source would be potassium. Generally the amount of potassium in wood ash is low (.89% for G-P's) and is not generally considered a water pollutant. He further stated that trace metals found in the ash are usually found at levels close to those found in soils and are in the form of oxides which are very insoluble in water (October, 1985 personal communication).

GENERAL DESCRIPTION OF THE LITTLE VALLEY AREA

Georgia-Pacific's property located in Little Valley is approximately eight miles north of Fort Bragg and can be reached either via Highway 1 to Little Valley Road or via Sherwood Road (two miles) to the company's Pudding Creek logging road which runs north to Little Valley (See Hap 1).

The climate of Little Valley is influenced by marine conditions, with warm, dry summers and cool, wet winters. Winter precipitation occurs primarily as rain in long duration, low to moderate intensity storms. Annual precipitation in this area is approximately 60 inches with the majority occurring between October 15 and April 15. Freezing temperatures occasionally occur in the Valley but seldom last for more than a few days.

The population of the Valley is low in number with most houses located adjacent to Little Valley Road. Several residences on Guthrie Road (two of which the company owns), border the western edge of the area the company proposes to amend (See Map 2). Plans for the next two years are to remain on the eastern side of Little Valley Creek, as planning for amending in the populated area of the company's property will need to be analyzed in more detail later.

LITTLE VALLEY SOILS

Soils in Little Valley have recently been identified by the Soil Conservation Service (SCS) as a Shinglemill/Gibney series mix. This is a preliminary classification by SCS but shouldn't undergo major changes prior to final classification. The Little Valley soils, while a mixture of two series, tend to run about 45% Shinglemi11, 35% Gibney and 20% inclueions (Carl Rittiman, SCS, Fort Bragg). "The Shinglemill soils occur on marine terraces with slopes of 2-9 percent and elevation ranging from 200 to 750 feet. They are taxonomically classed as a clayey, mixed, isomesic typic tropohumults. These soils are poorly drained with an intermittent water table occurring within a depth of 10 to 30 inches and continuing to a depth greater than 60 inches. The intermittent water table is present for extended periods following episodes of heavy rain during the months of December to April. Surface runoff for bare soil conditions is slow or medium with slow permeability. Soil pH throughout the typical Shinglemill profile is less than 5.1 from a depth of 0 to 63 inches.

The Gibney aeries consists of deep, somewhat poorly drained soils formed in marine sediments with slopes of 2-9 percent and range in elevation from 200 to 750 feet. These soils are taxonomically classed as a clayey, mixed, isomesic typic tropohumults. This series has an intermittent water table that occurs within a depth of 30-50 inches and may continue to greater than 60 inches. The water table of the Gibney series like the Shinglemill series, is present for extended periods, following episodes of heavy rain during the months of December through April in most years. Surface runoff, under bare soil conditions, is slow or medium with slow permeability. Soil pHvariesfrom4.5-6.0 within the first 9 inches of depth and is less that 5.1 from 9 inches to a depth of 63 inches." (SCS, 1985 preliminary series report). A complete preliminary soil interpretation for each soil series can be reviewed in the Appendix of this report.

DISPOSITION OF WOOD ASH

The ash collection system, at the Fort Bragg facility, generates approximately 720 to 1000 cubic yards of ash per week. The amount of ash varies by the type of wood being burned as well as by the moisture content of the hogfuel. Ash Ieaves the plant via trucks equipped with 20 cubic yard bins. The proposed plan is to have the trucks travel east on Sherwood Road and then continue north to Little Valley on the company's private logging road. Using this route would prevent the ash from drying and blowing off the top of the bins. This would be considered the normal route of transportation with the Highway 1 to Little Valley Road used only

during an emergency (for example, a washout or blockage of a section of the G-P road). The company road to Little Valley has not been open to traffic for several years and is currently being prepared for year-round use. Barring significant rainfall, the road should be completed by November 4, 1985.

The ash will be taken to Area A on Map 2 and be deposited from the truck into piles. The ash will be a minimum of fifteen feet from any drainage to prevent a direct discharge of material into waters of the State. Material will be deposited for five (5) days on each acre of ground in Area A and will be disked into the ground on a regular basis. The definition of a regular basis will vary by season and the company proposes the following as a guideline for this first year.

REGULAR BASIS OPERATING PROCEDURE

October 16, 1985 - March 31, 1986:

Material to be deposited at a rate not to exceed a total of 830 cubic yards per acre for a five (5) day period.

Durino Periods of no rain - Material must be disked in no later than quitting time on the third day. This would include deliveries made prior to quitting time on the third day.

During Periods of rain

Area A - Material that is deposited in this area is placed with the intent of disking the material into the soil within a 24-hour period of deposition. If conditions are so wet that such material cannot be disked in within the next 24-hour period, material should be taken to Area W.

Area W - This area has been designated a storage area for wood ash when wet weather or road conditions prevent the disposition of ash to Area A or when soil moisture conditions in Area A prevent disking within a 24-hour period. Material will be delivered to Area W of Nap 1 which will have been disked in advance and be distributed in roads that run perpendicular to the main G-P logging road (Diagram 1). The roads will not be more than 20 feet wide and will run the length of Area W to the tree line. There will be a space of 20 feet between each road and the depth of ash abmve the ground will be kept to approximately one foot. This will continue until such time as Area W has been filled. The roads of ash will not extend to the east past the existing road.

Ideally conditions will be such that additional material will not have to be stock-piled and in the spring, the one foot of material can be spread to a thickness of six inches and disked in.

If conditions require the thickness of the roads to be increased above the proposed one foot, the roads to the western edge of Area W will be increased first and will not exceed four feet in depth. Any material above the original one foot will be removed in the spring and disked into the soil in Area A.

April 1, 1986 - October 15, 1986:

Material to be deposited at a rate not to exceed a total of 830 cubic yards per acre for a five (5) day period. Material must be disked in by quitting time on the sixth day.

Material, coming from the mill on the sixth day will be deposited on the next acre. During periods of high winds, if ash begins to blow and poses an environmental health problem, the company will disk on a daily basis.

VEGETATION ESTABLISHMENT PROGRAM PLAN

Early Fall of 1986

1. Our cover crop will be a mixture of clovers and subclovers so as to provide nitrogen to the soil.

2. We will befertilizing thisclover once per year.

Winter of 1985

According to Rod Shippy, Farm Advisor, Ukiah, it is getting too late in the year to plant clover for year round cover and rates of application are unknown for soils amended with material with a high carbon content. However, Rod suggested that we set out several. test plots to be able to develop a sowing rate for next fall, as well as to indicate how clover will do on the Little Valley soils.

Therefore, G-P proposes the following:

1. Plant annual rye grass (25 lbs/acre) on all areas that have been disk/plowed by February 1, 1986. This will provide a cover crop of vegetation to minimize runoff until clovers can be planted next fall.

2. Create four (4) 10' X 10' plots and give the plots the following treatments.

   Plot 0 - Control - no application of clover
   Plot 1 - Rpply clover- mix at the rate of 20 lbs/acre
   Plot 2 - Apply clover mix at the rate of 40 lbs/acre
   Plot 3 - Apply clover mix at the rate of 60 lbs/acre

3. Rod suspects that a clover application rate of 40 lbs/acre will be sufficient and suggests that we try several fertilizers and rates of fertilizer application on several additional plots. Our proposal is to create the foilowing plots.

   Plot 4 - Control - clover applied at rate of 40 lbs/acre
   Plot 5 - Clover (40 lbs/acre) + Urea at 50 lbs/acre
   Plot 6 - Clover (40 lbs/acre) + Urea at 100 lbs/acre
   Plot 7 - Clover (40 lbs/acre) + gypsum at 50 lbs/acre
   Plot 8 - Clover (40 lbs/acre) + gypsum at 100 lbs/acre
   Plot 9 - Clover + potassium chloride at 50 lbs/acre
   Plot 10 - Clover + potassium chloride at 100 lbs/acre
   Plot 11 - Clover + Urea, gypsum, potassium chloride at 50 lbs/acre
   Plot 12 - Clover + Urea, gypsum, potassium chloride at 100 lbs/acre

Plots identified in points two and three above would be put out between January 6-February 1, 1986 in an area that has been amended. Growth and development observations, measurements and photographs will be taken on a weekly basis.

"The agronomist at the Hopland Field Station is conducting a clover research study on coastal soils and will he making several observations. Reports will be sent 'to Water Quality for your- information.

4. Based on the results of the plot studies, a sowing and fertilizer schedule will be established for newt year.

LONG TERM DISPOSAL/USAGE OF ASH AND LITTLE VALLEY SITE

I have estimated that if we treat 80 acres per year, and we have 300 acres, the site at Little Valley could be utilized for 3.75 years. Furthermore, ail of the agricultural advisors think that each 80 acres area could be treated two times which would increase the life of the site to 7.5 years. I intend to take soil tests after one year to assess if there are any changes in soil conditions. These results may indicate whether the two applications per 80 acres are appropriate for the Little Valley soils. We would run the same tests as those included in this report.

In addition, we are pursuing other avenues of use for the fly ash. I heard from Ross Scherer (buyer) for Kingsford charcoal and he informs me that the ash samples collected from the primary collectors contain too much sand, silt, and dirt (inerts) for their needs. We are working with Lloyd's Specialty Products, in the Hay Area on the use of this material for pigments and final word on this possibility should be in by February 1986.

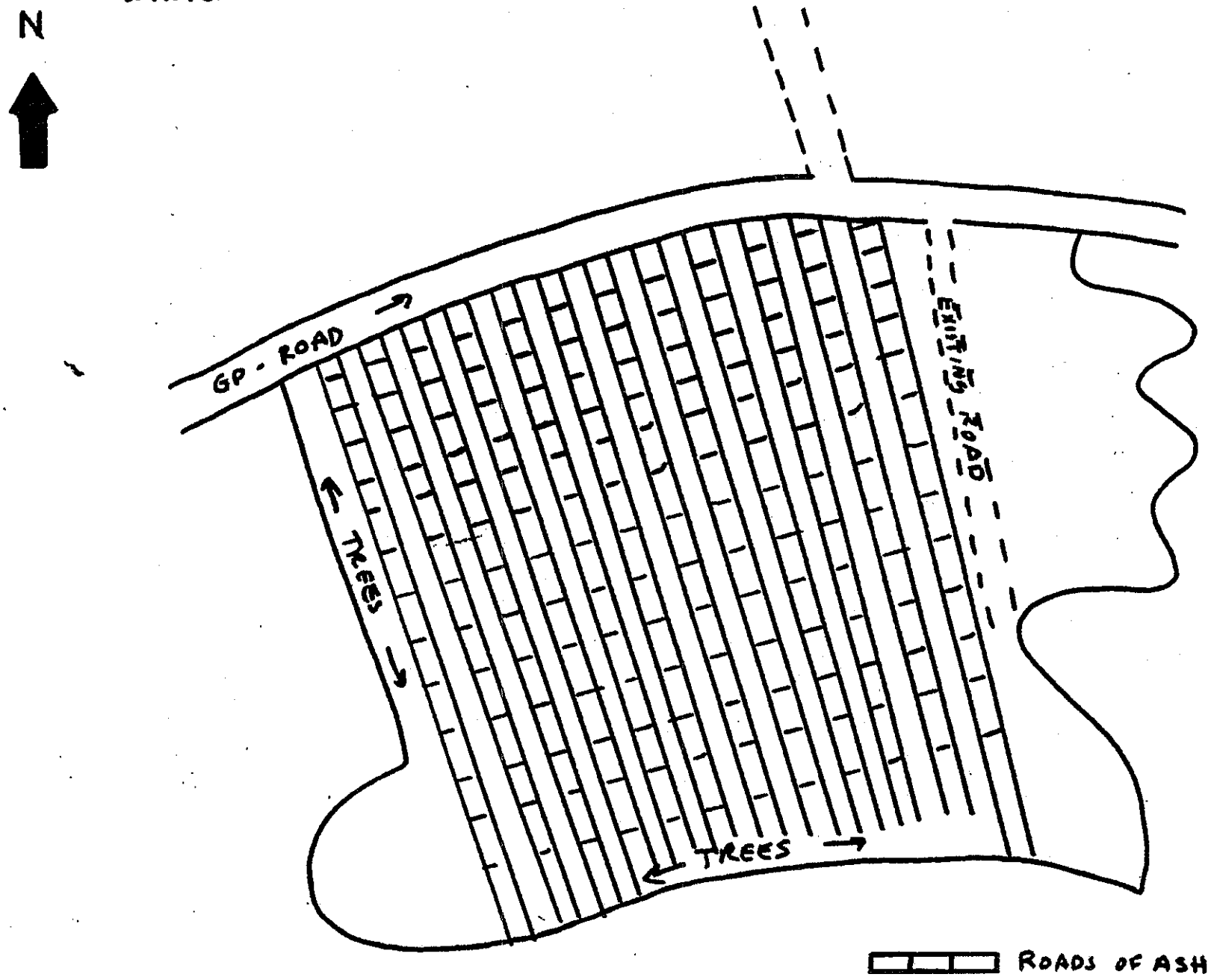
We are conducting a geotechnical investigation for renewal of our current wood waste site and are considering the option of increasing its current capacity. Originally: it was approved for 100 acres. To date, we have opened approximately 40 acres for use. Groundwater conditions to the east will probably determine whether this is possible or not. Aerial flights and mapping are being conducted now by CH2M Hill and final engineering will be complete in the Fall of 1986. We are also exploring other landfill site options with preliminary investigations to begin in February on one or two selected locations.

SOIL CHEMISTRY/ANALYSIS, ETC.

Results are included for your use. I would like to discuss these with you upon my return.

DIAGRAM 1 - AREA W

WINTER STORAGE AREA



NOT TO SCALE - JUST FOR CONCEPTUAL APPROVAL

COVER MATERIAL

The amended sections of Area A will be seeded the first year with annual rye grass at the rate of 25 lbs./acre. Seeding will be done during the period of September - February. Seed that is sown outside this period of time will not germinate due to low precipitation.

It is the intention of the company to amend each area two years in a row (if results of soil analysis allow) and to seed with annual rye grass each year. The third year, the area will be disked and planted with a subclover, clover, and orchard grass mix.

ASH APPLICATION RATE

In order to determine the amount of ash that should be applied to the soil, the method employed by Naylor and Johnson (2) in their publication is being used. The largest effect of the ash to the soil will likely be a pH change so the liming potential needs to be evaluated. Naylor and Johnson indicate that liming materials are compared using their equivalent neutralizing values (ENV). The ENV represents the percent effectiveness of a particular limestone relative to a standard limestone with an ENV of 100. The ENV of a material is a function of the total neutralizing value (TNV) and the fineness of the limestone particles. The TNV is estimated from the sum of the calcium and magnesium contents expressed as calcium carbonate.

Calculating TNV for the Georgia-Pacific ash sample is as follows:

$$\text{Ca:} \quad .9\% \times 2.50 \ \frac{CaCo_3 \text{ equivalents}}{\text{Ca equivalents}} = 2.25$$

$$\text{Mg:} \quad .2\% \times 4.12 \ \frac{CaCo_3 \text{ equivalents}}{\text{Mg equivalents}} = .824$$

$$\text{TNV} = 2.25 + .824 = 3.07$$

$$\text{ENV} = \text{TNV} \times \text{Fineness Score}$$

Naylor and Johnson simplify the fineness score for wood ash by considering all of the material reactive and give it a fineness score of 1.00.

Therefore, the calculated ENV for the Georgia-Pacific ash could be approximately 3. In order to calculate the rate of wood ash to achieve a particular pH, the application rate of limestone with an ENV of 100 needs to be known. The ideal application rate of limestone for the Shinglemill/Gibney series is being determined and the results should be known soon.

For now, a lime requirement of 2 tons/acre will be assumed. The local Farm Advisor's office estimates the requirement will more likely be 3-4 tons/acre.

$$2 \ \frac{\text{tons}}{\text{acre}} \text{ for ENV 100 limestone} \times \frac{100}{\text{ENV 3 wood Ash}} = 66.6 \ \frac{\text{tons}}{\text{acre}}$$

Ash sample analysis can be found in the Appendix.

SOILS WORK

It is the intention of the company to begin taking representative soil samples of the area to be amended during the next two years. These samples will be tested for pH and a lime requirement test will be completed. In addition, treated soils will be tested after the first season's rain for pH.

Our local Farm Advisor, Rod Shippey, as well as Dr. Bill Wildman, UC Davis, are both very interested in this project and will be advising the company on the soils monitoring program.

WATER MONITORING

A water sampling network will be established along the drainages in Area A. Samples will be taken from the stream adjacent to the current operating area. This stream is currently not flowing, therefore, the first sample will be taken when the stream begins to flow. Samples will be taken once a week while the stream is flowing and will be analyzed for pH.

UPDATE REPORTS

Georgia-Pacific will submit the results of its water analyses to the Regional Board on a monthly basis. These reports will be timed to arrive with the mill's monthly sampling report. Information on soils and vegetation will be sent to the Regional Board in a report-type format as soon as the information becomes available to Georgia-Pacific. Georgia-Pacific intends to schedule a series of meetings with both the Regional Board staff and other concerned local agencies throughout the next year to update all parties on the progress of this project.

REFERENCES:

1 United States Department of Agriculture, 1938. Soils and Men. Yearbook of Agriculture 1938. United States Government Printing Office. pp. 518-9.

(2) Naylor, Lewis and James Johnson, 1985. Papermill Wood Derived Boiler Ash as a Fertilizer. Department of Agricultural Engineering, Cornell University, Ithaca, N.Y. p. 27.

APPENDIX

CA1821

SOIL INTERPRETATIONS RECORD

MLRA(S): 4
CAR: 4-85

PRELIMINARY

GIBNEY SERIES

THE GIBNEY SOILS ARE DEEP AND SOMEWHAT POORLY DRAINED. THEY ARE ON MARINE TERRACES AT ELEVATIONS OF 200 TO 750 FEET. MAP IS 45 INCHES. MAAT IS 53F. FFS IS 270 TO 330 DAYS. THE SURFACE SOIL IS PALE YELLOW LOAM 9 INCHES THICK. THE UPPER 20 INCHES OF THE SUBSOIL IS BROWNISH YELLOW SANDY CLAY LOAM AND CLAY LOAM. THE NEXT 26 INCHES IS YELLOWISH BROWN CLAY WITH MANY MOTTLES. THE LOWER PART TO 63 INCHES IS LIGHT GRAY SANDY CLAY LOAM WITH COMMON MOTTLES. SLOPES RANGE FROM 2 TO 9 PERCENT.

ESTIMATED SOIL PROPERTIES (A)

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT >3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
0-9	L	CL, CL-ML	A-4	0	80-100	75-100	70-85	50-65	25-35	5-10
9-29	SCL, CL	CL, SC	A-6	0	80-100	75-100	75-85	40-65	30-40	10-20
29-55	C, SC	ML, MH	A-7	0	80-100	75-100	75-90	50-80	40-60	10-25
55-63	SCL, SL	SC, SM-SC	A-4, A-6	0	80-100	75-100	65-80	35-50	20-30	5-15

DEPTH (IN.)	CLAY (PCT)	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	EROSION FACTORS K	T	WIND EROD. GROUP	ORGANIC MATTER (PCT)	CORROSIVITY STEEL	CONCRETE
0-9	7-15		0.6-2.0	0.14-0.17	4.5-6.0	-	LOW	.32	5	8	3-5	HIGH	HIGH
9-29	25-35		0.2-0.6	0.15-0.19	<5.1	-	MODERATE	.32					
29-55	40-60		0.06-0.2	0.14-0.16	<5.1	-	MODERATE	.20					
55-63	15-30		0.2-0.6	0.12-0.16	<5.1	-	MODERATE	.20					

FLOODING FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE DEPTH (FT)	KIND	MONTHS	CEMENTED PAN DEPTH (IN)	HARDNESS	BEDROCK DEPTH (IN)	HARDNESS	SUBSIDENCE INIT. (IN)	TOTAL (IN)	HYD GRP	POTENT. FROST ACTION
NONE			12.5-3.0	APPARENT	DEC-APR	-		>80		-		C	-

SANITARY FACILITIES

SEPTIC TANK ABSORPTION FIELDS	SEVERE-WETNESS,PERCS SLOWLY
SEWAGE LAGOON AREAS	2-7%: MODERATE-SLOPE 7+%: SEVERE-SLOPE
SANITARY LANDFILL (TRENCH)	SEVERE-WETNESS,TOO CLAYEY,TOO ACID
SANITARY LANDFILL (AREA)	SEVERE-WETNESS
DAILY COVER FOR LANDFILL	POOR-TOO CLAYEY,HARD TO PACK,TOO ACID

BUILDING SITE DEVELOPMENT

SHALLOW EXCAVATIONS	2-8%: MODERATE-TOO CLAYEY,WETNESS 8-9%: MODERATE-TOO CLAYEY,WETNESS,SLOPE
DWELLINGS WITHOUT BASEMENTS	2-8%: MODERATE-SHRINK-SWELL 8-9%: MODERATE-SHRINK-SWELL,SLOPE
DWELLINGS WITH BASEMENTS	2-8%: MODERATE-WETNESS,SHRINK-SWELL 8-9%: MODERATE-WETNESS,SLOPE,SHRINK-SWELL
SMALL COMMERCIAL BUILDINGS	2-4%: MODERATE-SHRINK-SWELL 4-8%: MODERATE-SHRINK-SWELL,SLOPE 8+%: SEVERE-SLOPE
LOCAL ROADS AND STREETS	2-8%: MODERATE-SHRINK-SWELL 8-9%: MODERATE-SHRINK-SWELL,SLOPE
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	2-8%: SLIGHT 8-9%: MODERATE-SLOPE

CONSTRUCTION MATERIAL

ROADFILL	FAIR-SHRINK-SWELL,WETNESS
SAND	IMPROBABLE-EXCESS FINES
GRAVEL	IMPROBABLE-EXCESS FINES
TOPSOIL	POOR-THIN LAYER,TOO ACID

WATER MANAGEMENT

POND RESERVOIR AREA	2-3%: SLIGHT 3-8%: MODERATE-SLOPE 8+%: SEVERE-SLOPE
EMBANKMENTS DIKES AND LEVEES	SEVERE-HARD TO PACK
EXCAVATED PONDS AQUIFER FED	SEVERE-SLOW REFILL
DRAINAGE	2-3%: PERCS SLOWLY,TOO ACID 3+%: PERCS SLOWLY,SLOPE,TOO ACID
IRRIGATION	2-3%: WETNESS,PERCS SLOWLY 3+%: SLOPE,WETNESS,PERCS SLOWLY
TERRACES AND DIVERSIONS	2-8%: WETNESS,PERCS SLOWLY 8+%: SLOPE,WETNESS,PERCS SLOWLY
GRASSED WATERWAYS	2-8%: PERCS SLOWLY 8+%: SLOPE,PERCS SLOWLY

REGIONAL INTERPRETATIONS

MLRA(S): 4
CAR: 6-85

PRELIMINARY

THE SHINGLEMILL SOILS ARE DEEP AND POORLY DRAINED. THEY ARE ON MARINE TERRACES AT ELEVATIONS OF 200 TO 750 FEET. MAP IS 50 INCHES. MAAT IS 53F. FFS IS 270 TO 330 DAYS. THE SURFACE SOIL IS VERY PALE BROWN LOAM 8 INCHES THICK. THE UPPER SUBSOIL IS VERY PALE BROWN LOAM 7 INCHES THICK. THE MID SUBSOIL IS LIGHT YELLOWISH BROWN CLAY 10 INCHES THICK. THE LOWER SUBSOIL IS YELLOW CLAY WITH WHITE MOTTLES 38 INCHES THICK. THE SLOPES RANGE FROM 2 TO 9 PERCENT.

ESTIMATED SOIL PROPERTIES (A)

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT >3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
0-8	L	ML	A-4	0	80-95	75-95	70-85	50-65	25-35	NP-10
8-15	L, SCL	CL	A-6	0	80-100	75-100	70-85	40-65	30-40	10-15
15-25	CL, C	ML, MH	A-7	0	80-100	75-100	75-90	60-80	40-65	10-25
25-63	SC, C	ML, MH	A-7	0	80-100	75-100	65-80	50-80	45-65	15-25

DEPTH (IN.)	CLAY (PCT)	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	EROSION FACTORS K	T	WIND EROD. GROUP	ORGANIC MATTER (PCT)	CORROSIVITY STEEL	CONCRETE
0-8	7-20		0.6-2.0	0.14-0.17	<5.1	-	LOW	.28	5	8	4-6	HIGH	HIGH
8-15	20-30		0.2-0.6	0.14-0.17	<5.1	-	MODERATE	.32					
15-25	35-60		0.06-0.2	0.15-0.17	<5.1	-	MODERATE	.24					
25-63	40-60		0.06-0.2	0.14-0.17	<5.1	-	MODERATE	.24					

FLOODING FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE DEPTH (FT)	KIND	MONTHS	CEMENTED PAN DEPTH (IN)	HARDNESS	BEDROCK DEPTH (IN)	HARDNESS	SUBSIDENCE INIT. (IN)	TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
NONE			1.0-2.5	APPARENT	DEC-APR	-		>60		-		D	-

SANITARY FACILITIES

SEPTIC TANK ABSORPTION FIELDS	SEVERE-WETNESS,PERCS SLOWLY
SEWAGE LAGOON AREAS	2-7%: MODERATE-SLOPE 7+%: SEVERE-SLOPE
SANITARY LANDFILL (TRENCH)	SEVERE-WETNESS,TOO CLAYEY,TOO ACID
SANITARY LANDFILL (AREA)	SEVERE-WETNESS
DAILY COVER FOR LANDFILL	POOR-TOO CLAYEY,HARD TO PACK,WETNESS

CONSTRUCTION MATERIAL

ROADFILL	POOR-LOW STRENGTH
SAND	IMPROBABLE-EXCESS FINES
GRAVEL	IMPROBABLE-EXCESS FINES
TOPSOIL	POOR-TOO CLAYEY,TOO ACID

WATER MANAGEMENT

POND RESERVOIR AREA	2-3%: SLIGHT 3-8%: MODERATE-SLOPE 8+%: SEVERE-SLOPE
EMBANKMENTS DIKES AND LEVEES	SEVERE-HARD TO PACK,WETNESS
EXCAVATED PONDS AQUIFER FED	SEVERE-SLOW REFILL
DRAINAGE	2-3%: PERCS SLOWLY,TOO ACID 3+%: PERCS SLOWLY,SLOPE,TOO ACID
IRRIGATION	2-3%: WETNESS,PERCS SLOWLY 3+%: SLOPE,WETNESS,PERCS SLOWLY
TERRACES AND DIVERSIONS	2-8%: WETNESS,PERCS SLOWLY 8+%: SLOPE,WETNESS,PERCS SLOWLY
GRASSED WATERWAYS	2-8%: WETNESS,PERCS SLOWLY 8+%: WETNESS,SLOPE,PERCS SLOWLY

BUILDING SITE DEVELOPMENT

SHALLOW EXCAVATIONS	SEVERE-WETNESS
DWELLINGS WITHOUT BASEMENTS	SEVERE-WETNESS
DWELLINGS WITH BASEMENTS	SEVERE-WETNESS
SMALL COMMERCIAL BUILDINGS	2-8%: SEVERE-WETNESS 8+%: SEVERE-WETNESS,SLOPE
LOCAL ROADS AND STREETS	SEVERE-LOW STRENGTH
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	SEVERE-TOO ACID

REGIONAL INTERPRETATIONS

Alpha

Analytical Laboratories. Inc.

860 Waugh Lane. H-1. Ukiah. California 95482

(707) 468-0401

CLIENT Georgia Pacific

ADDRESS 90 W. Redwood Ave

Ft. Bragg, CA 95437

ATTN: Sue O'Leary

DATE COLLECTED ---

DATE IN LAB - -

COLLECTED BY client

SAMPLE TYPE ash

LABORATORY NO.:	4-1529	4-1530	4-1531	
CLIENT I.D.	Hopper collector discharge Chute B	Old boiler before scrubber	New boiler before scrubber	
Nitrogen	0.13	0.12	0.08	%
Phosphorous	0.06	0.13	0.04	%
Potassium	0.32	0.89	0.14	%
Calcium	0.9	2.1	0.5	%
Magnesium	0.2	0.4	0.2	%

Alpha
Analytical Laboratories, Inc.

Bruce L. Crane 7-27-84

LABORATORY DIRECTOR DATE

*-Tech
bo atorles, Inc.
320 TESCONI CIRCLE. SUITE R • SANTA ROSA. CA 95401 • (707) 544-5570

5-7-85

Georgia Pacific
90 W. Redwood Ave.
Ft. Bragg, Ca 95437

Date collected: 4-19-85
Date in Lab: 4-22-85
Collected By: client

Laboratory number: 5-1993
Client I.D.: Material Release 9573 .
Sample Type: ash

	STLC mg/L	STLC LIMIT	TTLC mg/kg	TTLC LIMIT
Antimony	<1	15	<100	500
Arsenic	<1	5	<100	500
Barium	30	100	400	10000
Beryllium	<0.01	0.75	<1	75
Boron			2.4	
Cadmium	<0.1	1.0	<10	100
Chromium	0.1	560	15	2500
Chromium (+6)	0.08	5		
Chromium (+3)	<0.1	560		
Cobalt	<5	80	<500	8000
Copper	0.2	25	10	2500
Lead	<0.1	5	<10	1000
Mercury	<0.1	0.2	<20	20
Molybdenum	<1	350	<100	3500
Nickel	0.1	20	10	2000
Selenium .	<0.1	1.0	<10	100
Silver	<0.1	5	<10	500
Thallium	<1	7	<100	700
Vanadium	<1	24	<100	2400
Zinc	0.1	250	20	5000
Moisture			4.96 %	

Samples were processed on an "as received" basis.,

Analytical Director

Multi-Tech
Laboratories, Inc.
320 TESCONI CIRCLE. SUITE R ▪ SANTA ROSA. CA 95401 ▪ (707) 544-5570

5-7-85

Georgia Pacific
90 W. Redwood Ave.
Ft. Bragg, Ca 95437

Date collected: 4-19-85
Date in Lab: 4-22-85
Collected By: client

Laboratory number: 5-1993
Client I.D.: Material Release 9573
Sample Type: ash

	STLC mg/L	STLC LIMIT	TTLC mg/kg	TTLC LIMIT
Antimony	<1	15	<100	500
Arsenic	<1	5	<100	500
Barium	30	100	400	10000
Beryllium	<0.01	0.75	<1	75
Boron			2.4	
Cadmium	<0.1	1.0	<10	100
Chromium	0.1	560	15	2500
Chromium (+6)	0.08	5		
Chromium (+3)	<0.1	560		
Cobalt	<5	80	<500	8000
Copper	0.2	25	10	2500
Lead	<0.1	5	<10	1000
Mercury	<0.1	0.2	<20	20
Molybdenum	<1	350	<100	3500
Nickel	0.1	20	10	2000
Selenium ▪	<0.1	1.0	<10	100
Silver	<0.1	5	<10	500
Thallium	<1	7	<100	700
Vanadium	<1	24	<100	2400
Zinc	0.1	250	20	5000
Moisture			4.96 %	

Samples were processed on an "as received" basis.,

Analytical Director

Alpha
Analytical **Laboratories. Inc.**
860 Waugh Lane. H-1. Ukiah. California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 W. Redwood Ave
Ft. Bragg, CA 95437

ATTN: Sue O'Leary

DATE COLLECTED ---
DATE IN LAB [illegible]
COLLECTED BY client
SAMPLE TYPE ash

LABORATORY NO.:	4-1529	4-1530	4-1531	
CLIENT I.D. :	Hopper collector discharge Chute B	Old boiler before scrubber	New boiler before scrubber	
Nitrogen	0.13	0.12	0.08	%
Phosphorous	0.06	0.13	0.04	%
Potassium	0.32	0.89	0.14	%
Calcium	0.9	2.1	0.5	%
Magnesium	0.2	0.4	0.2	%

Alpha
Analytical Laboratories, Inc.

Bruce P. Lowe 7-27-84
LABORATORY DIRECTOR DATE

PAPERMILL WOOD-DERIVED BOILER ASH AS fl FERTILIZER

I. Rvailable nutrients and liming value

LEWIS M. NAYLOR
JAMES A. JOHNSON

MAY 1985

Department of Rgricultural Engineerilng
Cornell Uniuersity
Ithaca New York 14853

DELLAVALLE
Laboratory, Inc.
Chemists and Consultants
1910 W. McKinley, Suite 119 • Fresno, CA 93728 • (209) 233-6129
1965 E. Tulare Ave. • Tulare, CA 93274 • (209) 688-0608

REPORT OF ANALYSIS

Georgia Pacific #2177
90 W. Redwood Ave
Fort Bragg, CA 95437

Lab No. 58381
Sampled
Submitted 10/31/85
Submitted By Sue O'Leary
Reported 11/14/85
Office Fresno

Identification Soil

Ranch

NO.		% SP	pH	% Ca	% Mg	% Na	Required Lime**	% NO3-N	% PO4-P	% K	----Meq/100g---- CEC	Base Sat*
1.	Upperfield East	38	4.0	0.02	*0.01	*0.01	7500	*0.1	*0.1	0.01	13	7.6
2.	Lowerfield South ?	62	4.1	0.03	*0.01	*0.01	9000	*0.1	*0.1	0.02	20	*0.1
3.	Area W West	49	4.3	0.02	*0.01	W.O1	9500	*0.1	*0.1	0.02	18	6.4

*Less Than

**lbs of 100% CaCO3 equivalence/acre 6"

DELLAVALLE LABORATORY, INC.

Mike A. Princevalle
Soil Scientist

MAP:ae

Enclosures

RECEIVED NOV 15 1985

DELLAVALLE
Laboratory, Inc.
Chemists and Consultants
1910 W. McKinley, Suite 110 • Fresno, CA 93728 • (209) 233-6129
1945 E Tulare Ln • Tulare, CA 93274 • (209) 688-0608

REPORT OF ANALYSIS

Lab No. 58382
Sampled
Submitted 10/31/85
Submitted By Sue O'Leary
Reported 11/14/85
Office Fresno

Georgia Pacific #2177
90 W. Redwood Ave
Fort Bragg. CA 95437

Identification Ash

Ranch

NO.	Description	pH	% N	% P	% K	% Ca	% Mg
1.	Ash Collection Pad Time Sampled 0900	9.7	0.1	0.21	1.1	1.92	0.29
2.	Ash Collection Pad Time Sampled 0800	10.0	0.1	0.18	1.0	1.58	0.25
3.	Ash Collection Pad Time Sampled 1400	9.8	0.1	0.25	1.2	2.36	0.34

DELLAVALLE LABORATORY, INC.

Mike A. Princevalle
Soil Scientist

MAP:ae

Enclosures

RECEIVED NOV 19 1985

Rec'd 10-29-85
DR 005 ATT. # 10

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE, P.O. BOX 9583
LITTLE ROCK, ARKANSAS 72209

October 25, 1985

PHONE: (501) 562-7444

Docket Clerk
Office of Solid Waste (WH-562)
U. S. Environmental Protection Agency
401 M Street S.W.
Yashington, D.C. 20460

Re: Section 3001/Dioxin Residues

Dear Sir:

The Arkansas Department of Pollution Control and Ecology is currently deeply involved with federal, state, and local government agencies, as well as local citizen groups, to develop a safe, efficient and economical method for disposal of approximately 3.000 drums of 2, 3, 7, 8 TCDD contaminated waste and 22,000 drums of 2, 3, 7, 8 TCDD-free acutely hazardous waste from previous manufacturing at the Vertac Chemical Company in Jacksonville, Arkansas.

The regulatory agencies have accepted a plan of on-site incineration by an EPA certified mobile incinerator (in process). The issue of residual waste management has effectively guided this project from the inception. We applaud the efforts to resolve the issue through reasonable regulatory changes. However, for the reasons enumerated below, we do not believe the September 12, 1985, proposed changes to 40 CFR Parts 261 and 271 to be reasonable.

1. The basic premise of 2, 3, 7, 8 TCDD TEF's is flawed because there is, to this writer's knowledge. no scientific basis for establishing the human toxicity of 2. 3, 7, 8 TCDD. This invites widespread misunderstanding concerning the potential toxicity and risk associated with any waste stream subjected to this regulation.

2. The analytical cost associated with 2, 3, 7, 8 TCDD TEF's will be prohibitive, both on the waste stream and the residues. Additionally, laboratory standards are not available for many of the isomers. This will further prolong timely regulatory action.

3. It would seem imperative that a regulatory approach on residue management should focus on the residues and not the waste feed. Since some incinerators can be expected to achieve better than six 9's DRE, a threshold level(s) in the residue should guide classification and disposal options (not unlike the PCB approach). Since application of the 'Derived From Rule' further limits residue disposal options, waste feed concentration limits do enable the process to proceed.

We must keep in mind the basis of RCRA, i.e. resource conservation and recovery. The resources we are using both in disposal capacity and capital in dealing with these wastes must bear some relationship to the relative environmental threat. It has essentially been established that 1 ppb in residential soils is a safe level. To require severe environmental controls on residue which is several orders of magnitude below these action levels is both unnecessary and wasteful.

It is possible to recover and reuse much of the incineration waste heat, scrubber residue, and water. Burdensome regulations impede this effort, drive up cost, and provide a negative environmental benefit.

Sincerely,

Robert E. Blanz (lk)

Robert Blanz, Ph.D., P.E.
Deputy Director
Program Operations

REB/ie

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

Interoffice Communication

TO: (1) Frank Reichmuth FR
(2) file - GP, Fort Bragg

DATE: October 25, 1985

FROM: Susan Warner

SUBJECT: Meeting with GP on agricultural amendment use of ash prnduced at Fort Bragg.

Sue O'Leary and Dow Jacobzoon from Georgia-Pacific will be meeting with us on Friday, November 1 at 1:00. The meeting is to discuss their preliminary proposal for handling of the fly ash problem. The attached memorandum summarizes some of the recent events concerning the fly ash. Problems arose from inappropriate disposal of the ash ostensisibly for use as a soil amendment. The ash was not used or properly managed as a soil amendment in most sites, and in some cases was used as fill material. The following is an abbreviated chronology of events:

Dec 18, 1984	Request DOHS assessment of use of fly ash as a soil amendment, and its classification as a "product. rather than waste.
Feb 4, 1985	DOHS replies that disagree with GP that ash is a by-product, not a waste and that use as a soil amendment may be appropriate if non-hazardous.
Apr 16, 1985	We request GP to analyze ash further to determine whether hazardous.
May 17, 1985	GP indicates attempt to obtain clarification from DOHS.
Aug 22, 1985	We cite subchapter 15 and request technical plan under 13267(b) for short and long-term solution with report due Sept 30.
Oct 2, 1985	Meet with GP and agencies and approve Little Valley site for interim use; also

	Class III disposal.
Oct 4, 1985	GP requests extension until Oct 18 for Tech Rpt.
Oct 4, 1985	We summarize our needs regarding Tech Rpt, and reaffirm disposal at Class III landfill.
Nov 1, 1985	Meeting scheduled.

I have reviewed the technical report submitted on October 18. It is a preliminary report, with more data to follow. My key concerns are the width of buffers adjacent to streams (10 feet proposed), the wet-weather activities, re-vegetation with the wide C:N ratios of ash, and the loading rates/expected acceptance rate of the soils in question.

November 8, 1985

Ms. Sue O'Leary
Foreet Hydrologist
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Sue:

Enclosed are the necessary forms to file a report of waste discharge on your proposed soil amendment use of the ash generated at the power plant. Please return a completed form 200, filing fee, and the remainder of the technical materials discussed at our November 1, 1965, meeting. These materials include: (1) your consideration of vegetation establishment in soils treated with ash of a wide C:N ratio and the documentation to support your proposal; (2) a time schedule for consideration of the long-term disposal/usage of the ash; (3) your final analysis of the acceptability and expected duration of use of the Little Valley site: and (4) the soils chemical analysis including CEC, percent base saturation, etc.

Your forms, fee, and complete report of waste discharge should be submitted by December 1, 1985, in order for us to prepare the necessary documents for consideration of waste discharge requirements for the Little Valley site.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

Enclosures

File: GP, Ft Bragg Ash

31280 Little Valley Rd

COMPLAINT FORM

Complainant: Gloria Davis **Date** 12-11-85

Address: Little Valley, Ft. Bragg Area. **Phone No:** 964-7843

Regarding: G.P. Is dumping fly ash all over Little Valley and it is running off into Pudding Cr.

Date of Occurrence: On-going Timer

Description:

Who owns or operates the site?

If it is an industry, what business is conducted **on the** site?

Was the **material/pollutant** colored? **What** color?

Was the material or water foamy?

Was the pollutant **oily?** **Is** there a sheen to the water?

Was there an ***odor*** **associated** with the pollutant?

Were there any labels **or** names **visible on** the **can,** barrel, or **truck?**

What volume of material is involved?

Other Agencies **Notified:**

Complaint ***Taken*** by TV

Referred to FCR

Action Recommended Mrs. Davis would like someone to call her this afternoon and explain what is going on. I called & explained process. She wanted to see copy of EOSR/WDRs etc.

SEJ

Action Taken_____

Disposition _____

Complainant Notified of Disposition by _____

Dated_____

S. O'Leary: looks ok; low: fuel & 1/2 tested; not frozen, no surface runoff

: fuel storage area looks ok - recharged the gauge.

FB 4580 (1-85)

Georgia-Pacific Corporation
90 West Redwood Avenue a Fort Bragg, CA
General Account

State Street Bank
& Trust Company
Boston, Massachusetts

-0/0-

CHECK NUMBER	CHECK AMOUNT
096453	$ **4,241.00**

12/17/85

4,241 Dolls 00 cts

VOID AFTER 180 DAYS
Not Valid Over $10,000.00

PAY

Georgia-Pacific Corporation

TO THE ORDER OF

STATE WATER RESOURCES
CONTROL BOARD

AUTHORIZED SIGNATURE

Marilyn L. LeRoy
AUTHORIZED SIGNATURE

⑈ 0096453⑈ ⑆011000028⑆ 2661 594 8⑈

Corporation 90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

December 17, 1985

Ms. Susan Warner
California Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Ms. Warner:

Enclosed you will find a completed Form 200, the filing fee and the technical information you requested.

I will be out of town from December 23 to January 6, 1986. I will call you when I get back to Fort Bragg to see if you have any further questions regarding this information.

Sincerely,

Sue O'Leary

Sue O'Leary
Forest Hydrologist
WESTERN WOOD PROD MFG
California Wood Products

SO:mm
Encl.

cc: J. A. Coon
D. G. Jacobszoon

STATE OF CALIFORNIA

MINI-MEMO

STD 100-B (REV. 9-70)

TO: Gloria [illegible]
3180 [illegible] Ave
Ft Bragg, CA

SUBJECT: G-[illegible]sh file

file

DATE 12/17/85

MESSAGE

In our telephone conversation of Dec 11, 1985, I mentioned a background site in the [illegible] mediterranean [illegible]. I will send you copies of the permit for the site when I get one available. This would be a [illegible] run sometime in 1986 and working in [illegible].

RETURN TO	SIGNED ► [illegible]	ADDRESS	PHONE

REPLY

SIGNED ►	ADDRESS	DATE

SEND PARTS 1 AND 3 INTACT — PART 3 WILL BE RETURNED WITH REPLY

OSP

California Regional Water Quality Control Board
North Coast Region

ORDER NO. 86-3
ID NO. 1B85030RMEN

WASTE DISCHARGE REQUIREMENTS

For

GEORGIA-PACIFIC CORWRATION
FORT BRAGG SOIL AUENDMENT

Mendocino County

The California Regional Water Quality Control Board, North Coast Region (hereinafter Board) finds that:

1. Georgia-Pacific Corporation (hereinafter discharger) submitted a Report of Waste Discharge dated December 19, 1985.

2. The Report of Waste Discharge describes use of woodwaste ash, a nonhazardous decomposable waste, as a soil amendment using applicable Best Management Practices pursuant to Section 2511(f) of Title 23. Chapter 3. Subchapter 15 of the California Administrative Code. The woodwaste is generated by the power plant operated at the Georgia-Pacific sawmill. The soil amendment site is located in Little Valley wlthin Sections 14, 22, 23, 24, and 26 of T19N, R17W, MDB&M on 330 acres of pasture land along Little Valley Creek. There will be occasional stockpiling of ash durlng inclement weather on an additional eight acre parcel in Section 14, T19N, R17W MDB&M adjacent to the South Fork of Ten Mile Creek. Dralnage controls and management practices for incorporating the ash into the soil are designed to prevent a discharge of ash to surface streams.

3. Soils in the area of the soil amendment application are preliminarily classified as Shinglemill and Gibney, with 20 percent inclusions. Soil analyses have been conducted at the site on cation exchange capacity. base saturation, pH and other nutrient analyses.

4. The Board adopted the North Coastal Basin Water Quality Control Plan on March 20. 1975. The basin plan contains a prohibltlon against new waste discharges to all coastal streams and natural drainageways that flow directly to the ocean.

5. The beneficial uses of Little Valley Creek, Puddlng Creek. and Ten Hile Creek include:

   a. municipal and domestic water supply
   b. agricultural water supply
   c. potential industrial service water supply
   d. potential industrlal process water supply
   e. groundwater recharge

f. water contact recreation
g. non-contact water recreation
h. warm freshwater habitat
I. cold freshwater habitat
J. wildlife habitat
k. fish migration
l. fish spawning

6. The County of Mendocino has zoned this area as timber production and does not require a permit for a use of the land consistent with this zoning. The Board has determined that compliance with this Order will mitigate any potential adverse water quality impact.

7. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the proposed discharge and has provided them with an opportunity for a public meeting and an opportunity to submit their written views and recommendations.

8. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

THEREFORE, IT IS HEREBY ORDERED. that in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, the discharger shall comply with the following:

A. PROHIBITIONS:

1. There shall be no discharge of ash to surface streams at any time.

B. SPECIFICATIONS:

1. There shall be no runoff of ash to land which is not controlled by the discharger.

2. The soil amendment usage of ash shall not cause a pollution or nuisance as defined in Section 13050 of the California Water Code.

3. No ash materials shall be deposited outside of the soil amendment areas shown on Attachment "A".

4. The soil amendment area shall be protected from any washout or erosion of ash or covering materials and from inundation which could occur as a result of floods having a predicted frequency of once in 100 years.

5. Annually, prior to the anticipated rainfall period, a cover crop shall be established in the soil amendment area to prevent erosion of the site.

6. During the rafny season, only the active area of ash placement shall be left exposed to rainfall. The active area shall not be excessively large for incorporation operations and vegetation establishment.

C. PROVISIONS:

1. The discharger shall maintain a copy of this Order so as to be available at all times to site operating personnel.

2. The discharger shall comply with the Contingency Planning and Notification Requirements Order No. 74-151 and the Monitoring and Reporting Program No. 86-3 and the General Provisions for Monitoring and Reporting, and any modifications to these documents as specified by the Executive Officer. Such documents are attached to this Order and incorporated herein. Monitoring and Reporting Program No. 86-3 shall be reviewed by staff at least annually and modified if appropriate, to ensure compliance with Section 13267(b) of the State Water Code.

3. In the event of any change in control or ownership of land used for soil amendment purposes presently owned or controlled by the discharger. the discharger shall notify the succeeding owner or operator of the existence of this Order by letter. a copy of which shall be forwarded to this Board.

4. The discharger shall submit to the Board by January 31 of each year an annual summary report presenting data from the previous year on total amount of ash applied, number of acres receiving ash, pertinent soil and ash analyses, and estimated pasture land yield.

5. The discharger shall file with the Board a Report of Waste Discharge at least 120 days before making any material change or proposed change in the character, location or volume of the soil amendment use of ash waste.

6. After notice and opportunity for a meeting, this Order may be terminated or modified for cause. including, but not limited to:

   a. violation of any term or condition contained in this Order;
   b. obtaining this Order by misrepresentation. or failure to disclose fully all relevant facts;
   c. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

7. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the discharger from his liabilities under Federal, State, or local laws, nor guarantee the discharger a capacity right in the receiving waters.

8. The dlscharger shall permit the Regional Board:

   a. entry upon premises in which the ash waste is stored or used in which any required records are kept;
   b. access to copy any records required to be kept under terms and conditions of this Order;
   c. inspection of monitoring equipment or records; and
   d. sampling of any discharge.

9. In the event the discharger is unable to comply with any of the conditions of this Order due to:

   a. breakdown of soil amendment application equipment;
   b. accidents caused by human error or negligence; or
   c. other causes such as acts of nature;

   the dlscharger shall notify the Executive Officer by telephone as soon as he or his agents have knowledge of the incident and confirm this notiflcatlon in writing wlthin two weeks of the telephone notification. The written notification shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to correct the problem and the dates thereof, and what steps are being taken to prevent the problem from recurring.

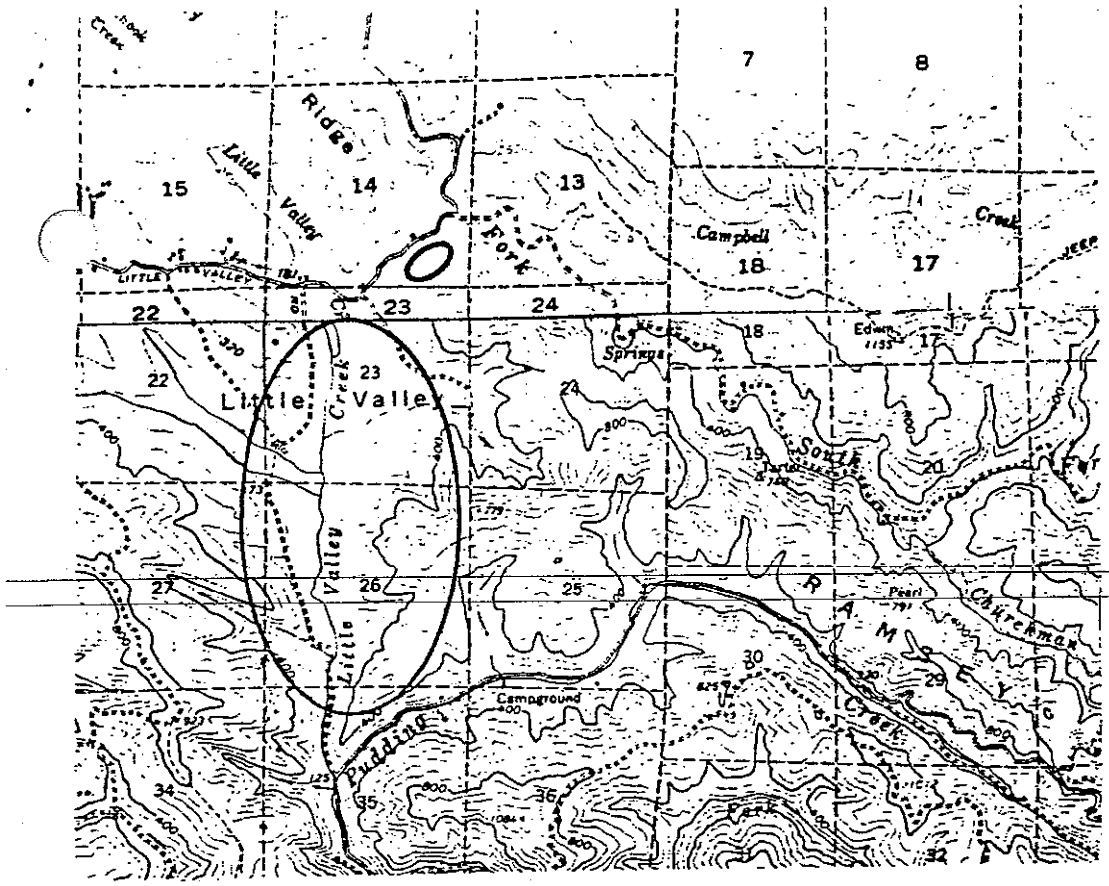
10. This Order expires on January 30. 1990, and the dlscharger must file a Report of Waste Discharge in accordance with Tltle 23, California Administrative Code, not later than October 30, 1989.

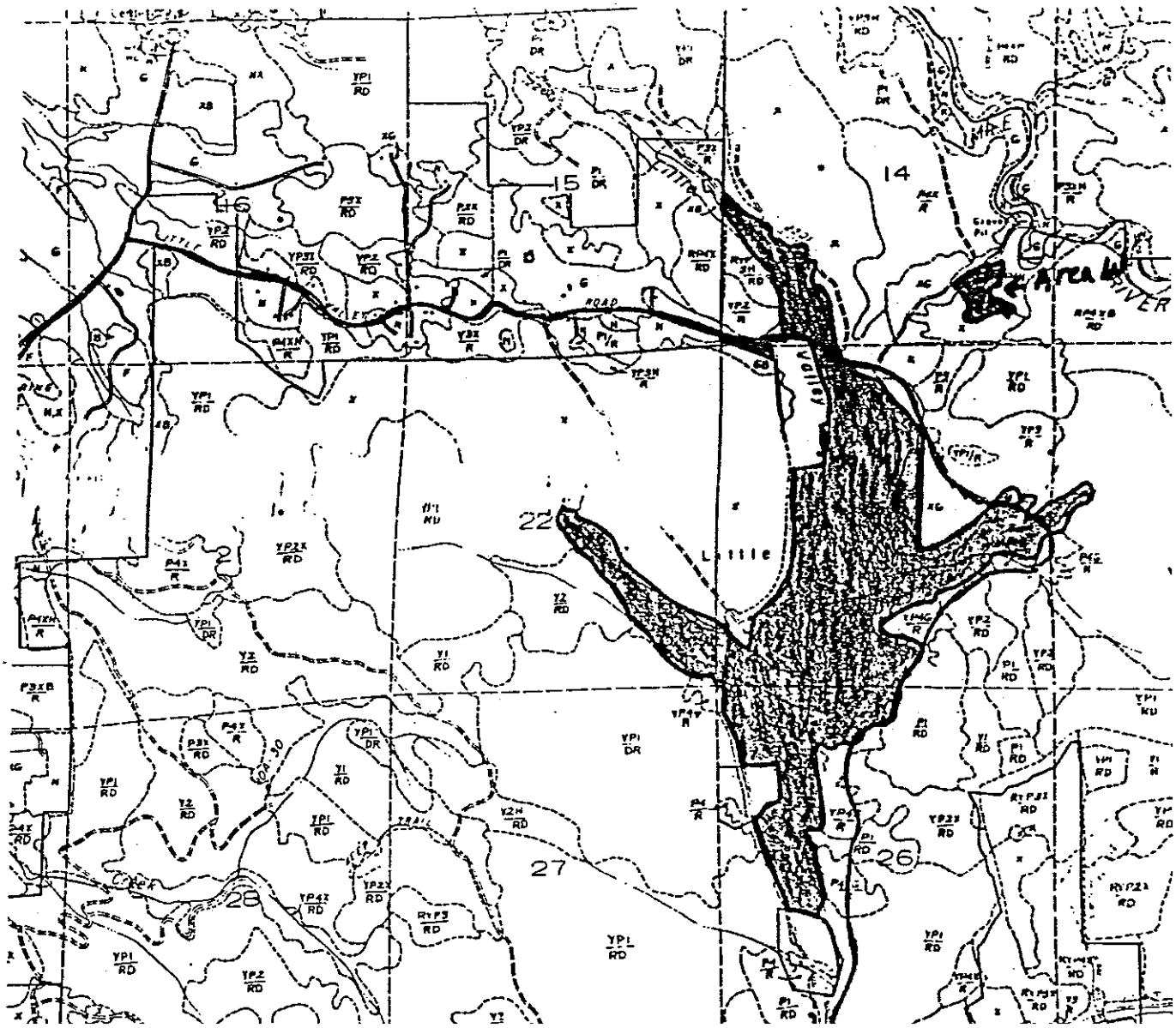
Certification

I, Benjamin D. Kor, Executive Officer. do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region. on January 30. 1986.

Benjamin D. Kor
Executive Officer

ATTACHMENT "A"





California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM NO. 86-3

FOR

GEORGIA-PACIFIC CORPORATION
FORT BRAGG SOIL AMENDMENT

Mendocino County

Monitoring

The discharger shall record the approximate volume of ash deposited at the site each month, the approxlmate number of treated acres, and the approximate tons of ash stockpiled in area "W".

Stormwater Runoff Uonitoring

Grab samples shall be taken periodically when streams are flowing from the points shown on the attached map. Samples shall be analyzed as follows:

Constituent	Units	Frequency
pH	pH units	weekly
COD	mg/l	November, January, March

Weekly rainfall totals shall also be recorded and reported.

Soils receiving ash shall be analyzed every October for CEC, percent base saturation, and pH at a depth of 0-1" and 11-12". An annual report shall be prepared each January 1 summarizing the water and soil analyses, amount of ash applied, the approxlmate number of acres receiving ash, and evidence of increased pasture land yield.

Reporting

Uonitoring reports shall be submitted monthly to the Board by the fifteenth of the month. Copies of signed laboratory sheets shall be submitted with any monthly summary report.

Ordered by _____
for Benjamin D. Kor
Executive Officer

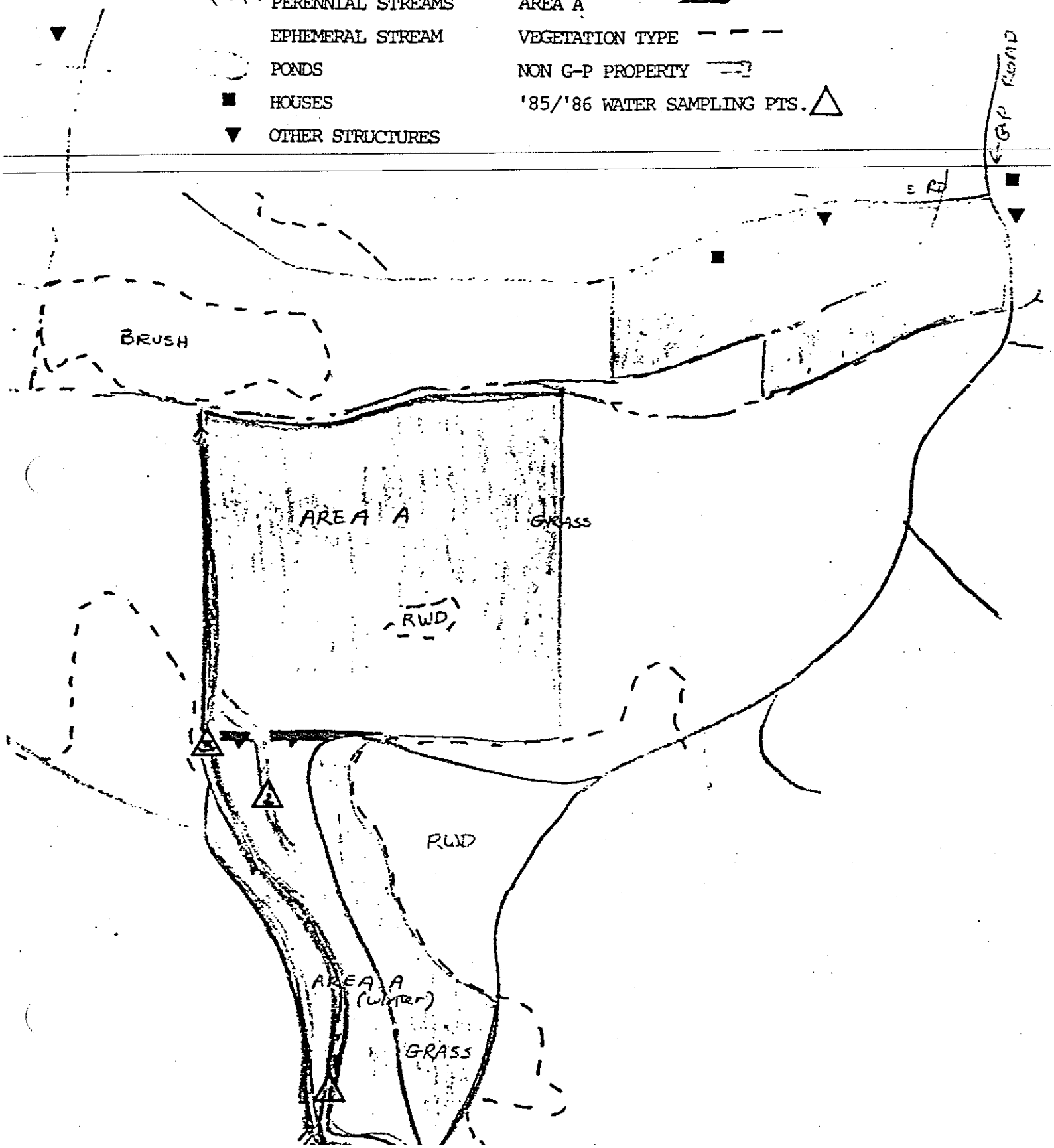
January 30, 1986

Georgia-Pacific

90 West Redwood Avenue
Fort Bragg, California 95437

LEGEND MAP 2

	ROADS		BUFFER ZONE
	PERENNIAL STREAMS		AREA A
	EPHEMERAL STREAM		VEGETATION TYPE
	PONDS		NON G-P PROPERTY
■	HOUSES		'85/'86 WATER SAMPLING PTS. △
▼	OTHER STRUCTURES		



California Regional Water Quality Control Board
North Coast Region

CONTINGENCY PLANNING AND NOTIFICATION REQUIREMENTS

FOR

ACCIDENTAL SPILLS AND DISCHARGES

ORDER NO. 74-151

The California Regional Water Quality Control Board, North Coast Region, finds that:

1. Section 13225 of the Porter-Cologne Water Quality Control Act requires the Regional Board to perform general duties to assure positive water quality control.

2. The Regional Board has been advised of situations in which preparations for, and response to accidental discharges and spills have been inadequate.

3. Persons discharging waste or conveying, supplying, storing, or managing wastes or hazardous materials have the primary responsibility for contingency planning, incident reporting and continuous and diligent action to abate the effects of such unintentional or accidental discharge.

THEREFORE, IT IS HEREBY ORDERED THAT:

I. All persons who discharge wastes or convey, supply, store, or otherwise manage wastes or other hazardous material shall:

A. Prepare and submit to this Regional Board, according to a time schedule prescribed by the Executive Officer, a contingency plan defining the following:

1. Potential locations and/or circumstances under which accidental discharge incidents might be expected to occur,

2. Possible water quality effects of accidental discharges,

3. The conceptual plan for cleanup and abatement of accidental discharge incidents, including:

a. The individual who will be in charge of cleanup and abatement activities on behalf of the discharger,

b. The equipment and manpower available to the discharger to implement the cleanup and abatement plans,

B. Immediately report to the Regional Board any accidental discharge incidents. Such notification shall be made by telephone as soon as the responsible person or his agent has knowledge of the incident.

C. Immediately begin diligent and continuous action to cleanup and abate the effects of any unintentional or accidental discharge. Such action shall include temporary measures to abate the discharge prior to completing permanent repairs to damaged facilities.

D. Confirm the telephone notification in writing within two weeks of the telephone notification. The written notification shall include: reasons for the discharge, duration and volume of the discharge, steps taken to correct the problem and steps being taken to prevent the problem from recurring.

II. Upon original receipt of phone report (I.B), the Executive Officer shall immediately notify all affected agencies and known users of waters affected by the unintentional or accidental discharge.

III. Provide updated information to the Regional Board in the event of change of staff, size of the facility, or change of operating procedures which will affect the previously established contingency plan.

IV. The Executive Officer or his employees shall maintain liaison with the discharger and other affected agencies and persons to provide assistance in cleanup and abatement activities.

V. The Executive Officer shall transmit copies of this Order to all persons whose discharges of waste handling activities are governed by Waste Discharge Requirements or an NPDES Permit. Such transmittal shall include a current listing of telephone numbers of the Executive Officer and his key employees to facilitate compliance with Item I.B of this Order.

Ordered by Ben Kor
Benjamin D. Kor
Executive Officer

July 24, 1974
(Retyped January, 1986)

Your primary notification should be to the Regional Board office at Santa Rosa at (707) 576-2220. During off hours, you will be able to leave a recorded message at that number and, if you have a spill or discharge emergency, you will also be referred to the State Office of Emergency Services (OES) at (800) 852-7550. OES maintains a roster of key employees and will relay your notification to Regional Board staff.

California Regional Water Quality Control Board
North Coast Region

GENERAL MONITORING AND REPORTING PROVISIONS

February 3, 1971
(Retyped July, 1982)

GENERAL PROVISIONS FOR SAMPLING AND ANALYSIS

Unless otherwise noted, all sampling, sample preservation, and analyses shall be conducted in accordance with the current edition of "Standard Methods for the Examination of Water and Waste Water" or approved by the Executive Officer.

All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health or a laboratory approved by the Executive Officer.

All samples shall be representative of the waste discharge under the conditions of peak load.

GENERAL PROVISIONS FOR REPORTINQ

For every item where the requirements are not met, the discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time and submit a timetable for correction.

By January 30 of each year, the discharger shall submit an annual report to the regional board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the waste discharge requirements.

The discharger shall file a written report within 90 days after the average dry-weather flow for any month that equals or exceeds 75 percent of the design capacity of the waste treatment or disposal facilities. The report shall contain a schedule for studies, design, and other steps needed to provide additional capacity or limit the flow below the design capacity prior to the time when the waste flow rate equals the capacity of the present units.

F

CERTIFIED· Return Receipt Requested

January 2, 1986

Sue O'Leary
Eeoraia-Pacific Corwration
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Ns. O'Leary:

Enclosed are draft Waste Discharge Requirements for the soil amendment use of Georgia-Pacific's fly ash. These tentative requirements are also being circulated to interested agencfes and parties to review.

Please review the enclosed requirements and contact me concerning any questions as soon as possible. These requirements will be scheduled for consideration at the January 30. 1986 Regional Board at the Sonoma County Board of Supervisor's Chambers, 575 Administration Drive in Santa Rosa, California. The requirements will be placed on the consent calendar unless you or others have concerns with the requirements which cannot be resolved prior to the Board meeting.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

cc: Jerry Davis. Nendocino County Health Department, Ukiah
Ed Bridges, Uendocino County Health Department. Fort Bragg
Bob Swan. Air Pollution Control District, Ukiah
Gloria Davis, [illegible] Valley Road, Fort Bragg

P 724 542 546

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Sue O'Leary
Georgia-Pacific Corporation
Street and No. 90 West Redwood Avenue
P.O., State and ZIP Code Fort Bragg, CA 95437
P.O. 1983-403-517

STATE OF CALIFORNIA

GEORGE DEUKMEJIAN, *Governor*

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION
1000 CODDINGTOWN CENTER
SANTA ROSA. CALIFORNIA 95401
Phone: 707-576-2220

January 2, 1986

NOTICE

PROPOSED WASTE DISCHARGE REQUIREMENTS

FOR

GEORGIA-PACIFIC CORPORATION
FORT BRAGG SOIL AMENDMENT

Mendocino County

Comments or recomnendations you may have concerning the proposed Order should be submitted in writing to the Regional Board by January 13, 1986. Comments received after this date cannot be given full consideration.

Benjamin D. Kor
Executive Officer

Attachment

cc: SWRCB, Division of Water Quality. Attn: Archie Matthews
DFG, Sacramento
DFG. Yountville
Mendocino County Health Department
SEB, Santa Rosa
DWR, Central District. Sacramento
USDI, Fish & Wildlife Service, Sacramento
Dept. Parks 8 Recreation. Sacramento. Attn: James M. Doyle
EPI-Center, Office of Planning Analysis, Ukiah

Susan A. Warner

California Regional Water Quality Control Board
North Coast Region

ORDER NO. 86-3

PRELIMINARY

WASTE DISCHARGE REQUIRERENTS

For

GEORGIA-PACIFIC CORPORATION
FORT BRAGG SOIL AMENDMENT

Mendocino County

The California Regional Water Quality Control Board, North Coast Region (hereinafter Board) finds that:

1. Georgia-Pacific Corporation (hereinafter discharger) submitted a Report of Waste Discharge dated December 19, 1985.

2. The Report of Waste Discharge describes use of woodwaste ash. a nonhazardous decomposable waste, as a soil amendment using applicable Best Management Practices pursuant to Section 2511(f) of Title 23, Chapter 3, Subchapter 15 of the California Administrative Code. The woodwaste is generated by the power plant operated at the Georgia-Pacific sawmill. The soil amendment site is located in Little Valley within Sections 14, 22, 23, 24, and 26 of T19N, R17W, MDB&M on 330 acres of pasture land along Little Valley Creek. There will be occasional stockpiling of ash during inclement weather on an additional eight acre parcel in Section 14, T19N, R17W MDB&M adjacent to the South Fork of Ten Mile Creek. Drainage controls and management practices for incorporating the ash into the soil are designed to prevent a discharge of ash to surface streams.

3. Soils in the area of the soil amendment application are preliminarily classified as Shinglemill and Gibney, with 20 percent inclusions. Soil analyses have been conducted at the site on cation exchange capacity, base saturation, pH and other nutrient analyses.

4. The Board adopted the North Coastal Basin Water Quality Control Plan on March 20, 1975. The basin plan contains a prohibitlon against new waste discharges to all coastal streams and natural drainageways that flow directly to the ocean.

5. The beneficial uses of Little Valley Creek, Pudding Creek, and Ten Rile Creek include:

   a. municipal and domestic water supply
   b. agricultural water supply
   c. potential industrial service water supply
   d. potential industrial process water supply
   e. groundwater recharge

6. During the rainy season, only the active area of ash placement shall be left exposed to rainfall. The active area shell not be excessively large for daily incorporation operations and vegetatlon establishment.

D. PROVISIONS:

1. The discharger shall maintain a copy of this Order so as to be available at all times to site operating personnel.

2. The discharger shall comply with the Contingency Planning and Notification Requirements Order No. 74-151 and the Monitoring and Reporting Program No. 86-3 and the General Provisions for Monitoring and Reporting, and any modifications to these documents as specified by the Executive Officer. Such documents are attached to this Order and incorporated herein. Uonitoring and Reporting Program No. 86-3 shall be reviewed by staff at least annually and modified if appropriate, to insure compliance with Section 13267(b) of the State Water Code.

3. In the event of any change in control or ownership of land used for soil amendment purposes presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this Board.

4. The discharger shall submit to the Board by January 31 of each year an annual summary report presenting data from the previous year on total amount of ash applied, number of acres receiving ash. pertinent soil and ash analyses, and estimated pasture land yleld.

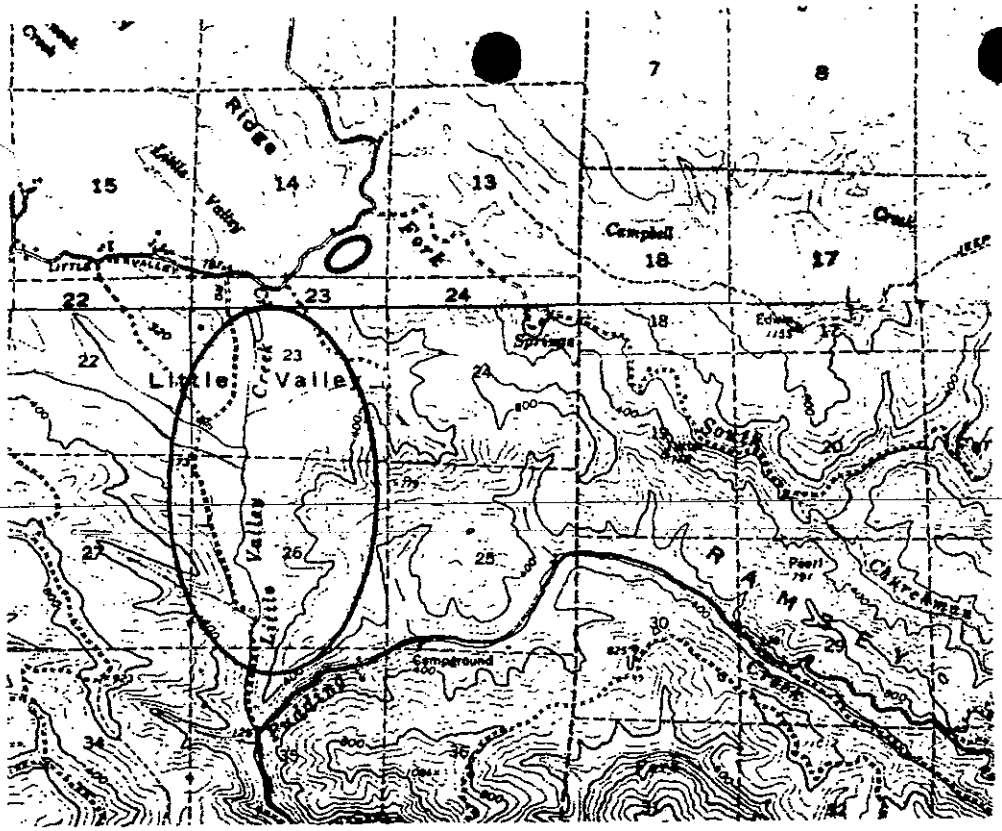
5. The discharger shall file with the Board a Report of Waste Discharge at least 120 days before making any materiel change or proposed change in the character, location or volume of the soil amendment use of ash waste.

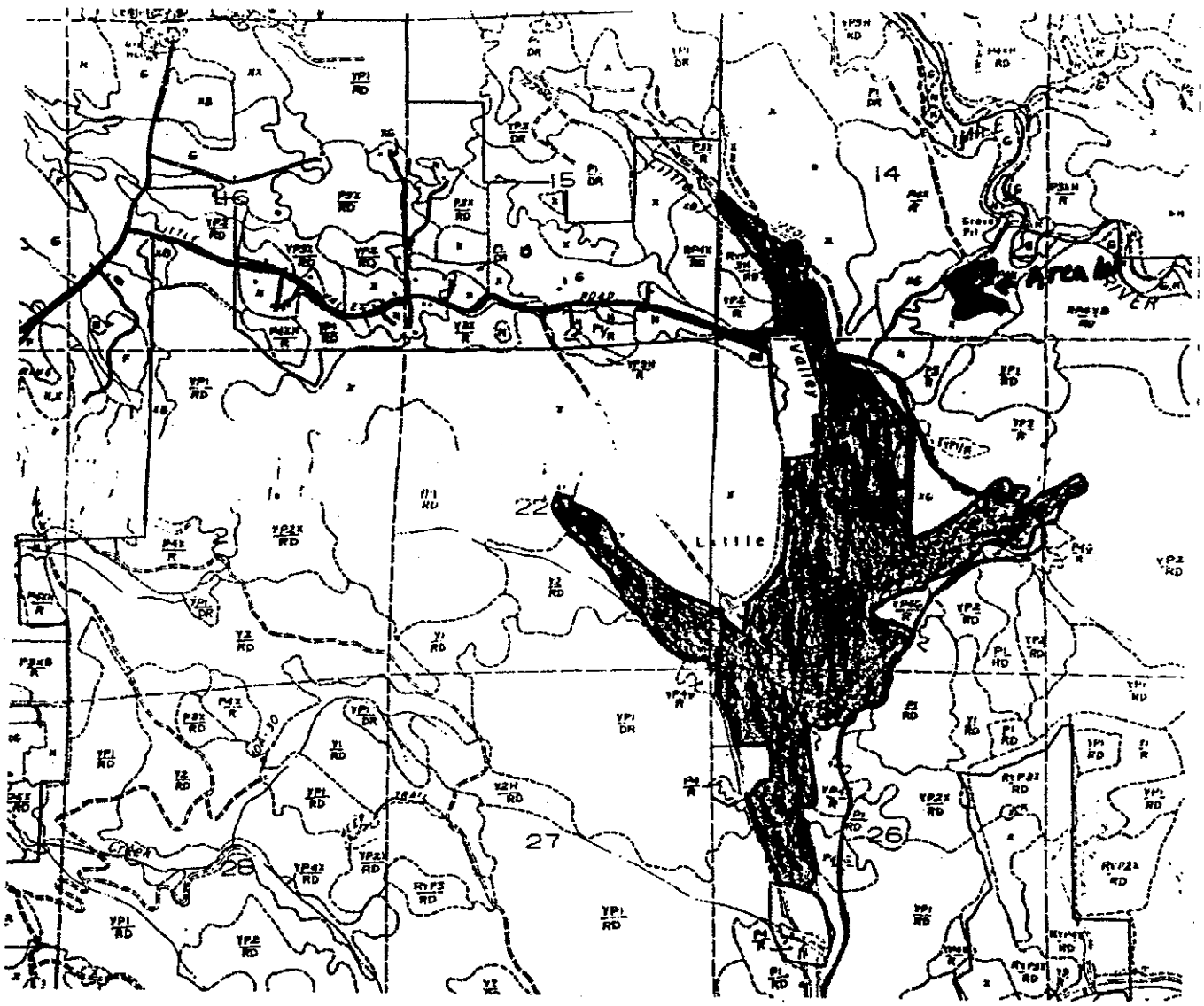
6. After notice and opportunity for a meeting. this Order may be terminated or modified for cause, including, but not limited to:

   a. violation of any term or condition contained in this Order;
   b. obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
   c. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

7. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another. nor protect the discharger from his liabilities under Federal, State, or local laws. nor guarantee the discharger a capacity right in the receiving waters.

ATTACHMENT "A"



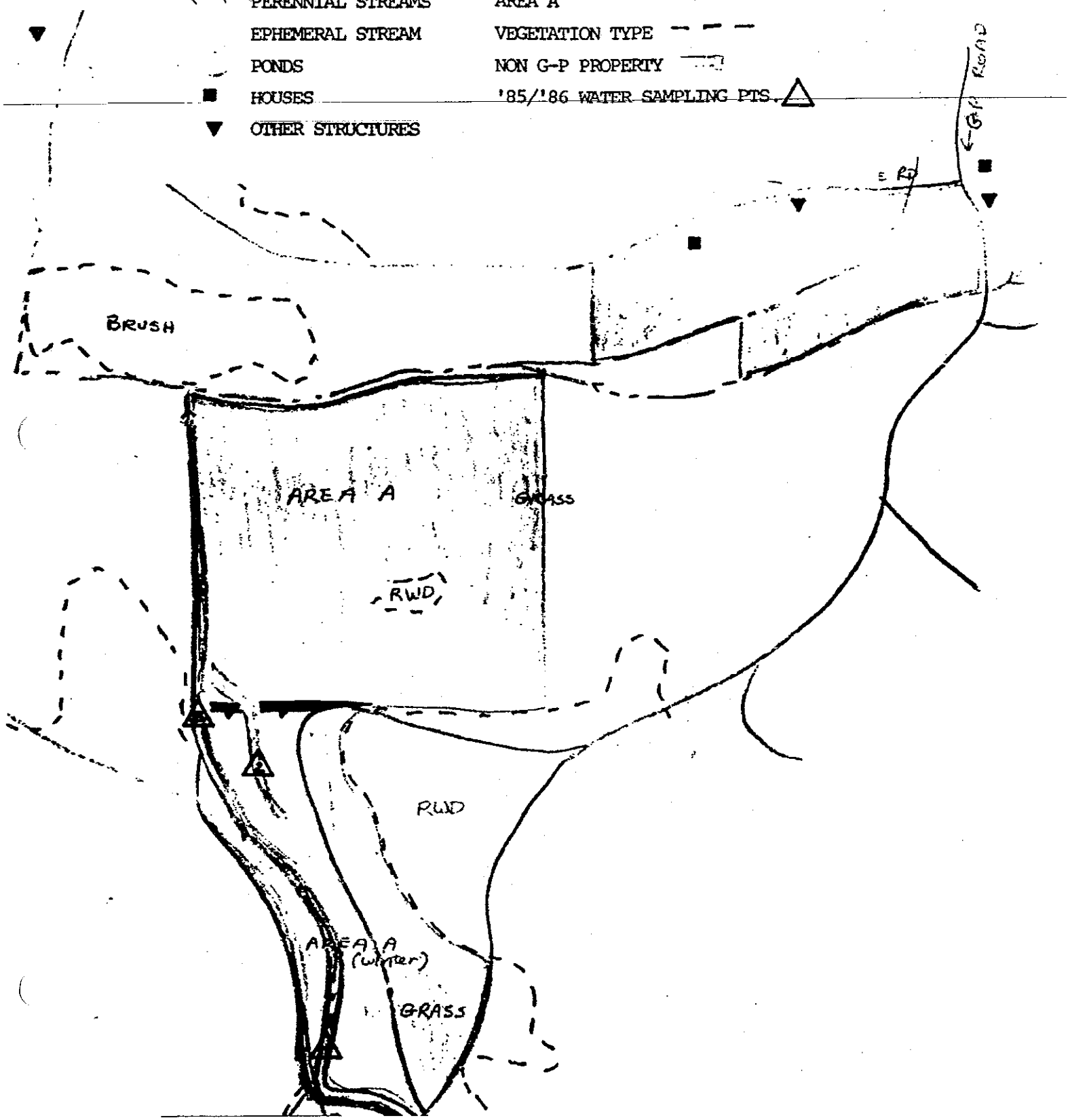


Georgia-Pacific

90 West Redwood Avenue
Fort Bragg, California 95437

LEGEND MAP 2

~	ROADS		BUFFER ZONE
-·-·-	PERENNIAL STREAMS		AREA A
	EPHEMERAL STREAM		VEGETATION TYPE
	PONDS		NON G-P PROPERTY
■	HOUSES	△	'85/'86 WATER SAMPLING PTS.
▼	OTHER STRUCTURES		



January 2, 1986

Sue O'Leary
Forest Hydrologist
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Ms. O'Leary:

I received your Report of Waste Discharge on the soil amendment use of ash in the Fort Bragg area, along with the associated filing fee on December 19, 1985. There are still a few questions which remain. Some of these questions may only be resolved through the test pits you have proposed. However, you should be aware that 1 am still concerned with revegetation on soils where a material with a wide C:N ratio has been applied.

As you know, soil amendments applied with wide C:N ratios (>35) tend to tie-up the nitrogen making it unavailable to plants. This can result in yield reductions or even failure of germination. The C:N ratio of the ash will probably be around 500, based on the nitrogen analyses and your suggested carbon content value of 50 percent. As you can see, this would result in immobilization of nitrogen in the soils where ash was applied. My major concern is that a cover crop be established, and that a good-faith effort be followed to improve soil conditions. This ensures the site is used as a bonafide soil amendment project rather than an expedient disposal site.

The enclosed rough worksheet shows my calculations on the liming equivalencv of the ash. Although I doubt that additions of ash would be successful1 in adjusting the base saturation of the soils as high as 85 Percent, usina this as a goal leads to an ash application rate of approximately 100 cu yd per acre for every six inches of depth. It may not be feasible to incorpoate the ash into the soil to the depth you suggested, 18 inches. If not, then your ash application rates would have to be lowered. The limiting factors would be the true depth of incorporation and, of course. the C:N ratio. I would appreciate meeting with you after the holidays on this matter.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

Enclosure

Ash Worksheet

Soils

base content of soils: (using Upperfield East & Area West) mean of 7 meq/100gm

CEC, mean of all 3 soils (10/31/85 data) = 17 meq/100gm

% Base saturation, then, is $\frac{7}{17} \times 100 = 41.2\%$

mean pH = 4.1

Ash

assume fineness = 1

$$[Ca] = \frac{1.92 + 1.58 + 2.36}{3} = 1.95 \approx 2$$

$$[Mg] = \frac{0.29 + 0.25 + 0.34}{3} = 0.29 \approx 0.3$$

Then $TNV = 2\,Ca\left(\frac{100.1\ CaCO_3}{40.1\ Ca}\right) + 0.3\,Mg\left(\frac{100.1\ CaCO_3}{24.3\ Mg}\right) = 5 + 1.2 = 6.2$

Then $ENV = (TNV)(1) = 6.2\%$

Rather than state amt needed for pH raise, calculations are based on raising the base saturation of 18" (rather than an AFS) of above soils.

To raise to 85% base saturation:

$(17)(.85) = 14.5$

$14.5 - 7 = 7.5$ meq needed

$(7.5)(1000\ \#/A)^{*}(3)$ ← to 18" depth $= 22{,}500\ \#/A$ pure lime

$= 11.25\ T/A$ "

Then, $\frac{11.25\ T/A}{ENV \rightarrow 0.062} \approx 180\ T/A$ ash, dry wt basis

$\frac{180\ T/A}{40\%\ \text{moisture}} = 453.6 \sim 450\ T/A$ wet wt ash

assumption

* using 1meq/100gm equivalent to 1000 lbs $CaCO_3$ [illegible]

If dry wt ash = 0.7 gm/cc ($\approx$ 1180 lb/yd^3), then wet wt ash can't = 708 lb/yd^3. I'm making an <u>assumption</u> of 40% moisture.

Therefore, wet weight = $\frac{1180 \text{ lb/yd}^3}{.4} \approx 3000$ lb/yd^3
≈ 1.5 T/yd^3

then, if 450 T/A ash is needed,

$$\frac{450 \text{ T/A}}{1.5 \text{ T/yd}^3} \approx 300 \text{ yd}^3/\text{A}$$

(NOTE: This is for 18"; divide by 1/3 for standard acre furrow slice.)

Sue's 66.6 cu yd equates to

$$\frac{66.6 \text{ yd}^3}{.4}/\text{A} = 165 \text{ yd}^3/\text{A}.$$

In other words, the soil base saturation change could accommodate more ash than is being suggested; the limiting factor will be other nutrients, particularly the C:N ratio, which is very wide for the ash

C:N = 50:0.1 = 500:1, <u>too wide</u>.

Nitrogen will be tied up by addition of ash.

STATE OF CALIFORNIA

OFFICE MEMO
STD. 100 (REV. 11-75)

DATE 1/14/86

TO:

SW = Susan Warner

ROOM NUMBER

FROM:

FR = Frank Reichmuth

PHONE NUMBER

SUBJECT: G.P. Ash

CRS received a phone call (today) from LOL in Ft. Bragg regarding G.P. Ash. Request removal from consent calander - will make pitch to Board - will send letter stating so.

file G.P., Mend

State of California

Department of Health Services

Memorandum

To : Benjamin D. Kor, Executive Officer
California Regional Water Quality
Control Board, North Coast Region
1000 Coddingtown Center
Santa Rosa, CA 95401

Date : January 14, 1986

Subject: Georgia-Pacific Corporation
Fort Bragg Soil Amendment,
Mendocino County

From : Sanitary Engineering Branch
Santa Rosa District Office

Thank you for the opportunity to comment on the subject actions being considered by your Board.

At this time we have no comments on the subject.

B. David Clark
District Engineer
Sanitary Engineering Branch
Santa Rosa District Office

BDC: ar

BOARD
REGION

JAN 16 '86

☐ BK ☐ RC
☐ CJ ☐ SW
☑ FR ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☑ FILE G-P, Ash

Jan 14, 1986

State of California
Regional Water Quality Control Board
North Coast Region.

Reg. Board Agenda Jan 3, 1986.
item 14.- 86-3.

I wish this to become part of the permanent written public record regarding Order 86-3 or its like.

I wish Order 86-3 be pulled from the consent calender to a public hearing because of a need for official public response by Mendocino County Board of Supervisors; Mendocino County Health Dept; California Air Pollution Control; Mendocino Planning Dept regarding zoning and adjacent land use; and that the issue of ash dumping is far more serious than is

(2). the usual public acknowledgement and or public hearing procedure heretofor.

I believe the ~~governor~~ governing body (elected) of Mendocino County be requested strongly to partake in a very cooperative effort to assure the ground water safety adjoining the sites of any dumping. The rural people depend on safe water.

It has been shown by news-paper print that Fort Bragg, Calif. is in the midst of an available water/use crisis in 1985, causing very strict emergancy ordinances water ration if a land use were to cause water table failure, thus compounded by the fact Fort Bragg, Calif. requires sewer connection/annexation and water all at once thus causing a sewer connection overload if a water table is fouled by land-uses not carefully thought out. These

(3) issues seem to be one worse be-
cause of inadequet water/rain this
winter.

Air Pollution Control testified to
the Mendocino County Board of
Supervisors that air ~~borne~~ borne
ash is a violation.

I have been very interested
in this ash issue to the Alberts
Best issue in my neighborhood and
consider having to request public
scrutiny of a Corporation procedure
very distasteful to my conviction of
property rights, but have discovered
there are problems created by poking
my head in a hole and letting life
go by the book, some of us interpret
english differently.

For the record also I called
and was told by Staff at Water
Quality Control item 86-3 would not

(4). be heard before noon on Jan. 30, 1986. Thus I am timing my presense at the hearing at 1:P.M. due to my great distance of travel.

I thank you for your patience and consideration.

Sincerely yours.
Mrs. Duane Aston
17801 Railroad Lane.
Ft Bragg. Calif. 95437

P.S. If there is a cancelation of hearing item above may I please be contacted by collect call prior to Jan 30, 1986. at 707-964-3102.

WATER QUALITY
CONTROL BOARD
REGION I

JAN 27 '86

☐ BK ____ ☐ RC ____
☐ CJ ____ ☐ ____
☐ FR ____ ☐ ____
☐ RT ____ ☐ ____
☐ JH ____ ☐ ____
☐ BB ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

January 23, 1986

Calif. Regional Water Quality Control Board
North Coast Region
1000 Coddingtown Center
Santa Rosa, CA 95401

To Whom It May Concern:

As a property owner and grandmother of four childern living on Little Valley Road, my main concern regarding the Georgia Pacific Ash Project is what the effect will be in relation to the people, especially childern, living on this road. The dumping site is not directly affecting the main population, but some of the factors which do affect the people and property are; (1) Dust, ('2) Noise, (3) Fumes from trucks, (4) Increase in traffic, (5) Added upkeep of the road.

Little Valley Road is prime property, high tax rate, in the sunbelt, good soil, high water table. Starting from Hiway 1 (North of Fort Bragg) L.V. Rd. is 1 3/4 miles of two lane road, narrowing into a one lane road for the next ½ mile. Guthrie Rd., Bennie Lane and Spruce Lane are short roads off the main part. This is not an extremely wide road. There are open drainage ditches along most of the length of the road, several blind curves and steep hills. The county has posted 30 mi. per hr. signs on the entire double lane distance.

From local knowledge I have compiled these statistics as of Jzn. 20. 1986:

Number of houses occupied on L.V. Rd.
Owners-34
Renters-12
Number of childern-45 (25 of these childern are under 10 years of age; college age not included.
Number of cars owned-57 (not exact count. under estimated)

There are a few retired people-the majority of people work.

My property is located on the north side of the beginning of the single lane. I compiled the following traffic count moving by my property on Jan. 10, 1986 (Friday), between the hours of 6:30 am to 12 noon; and 1:30 pm to 4:00 pm. Weather conditions were clear.

Schools buses-(large) 3 round trips
-(small) 1 round trip

Tree Trimming truck- 1 round trip
Cement truck- 1 round trip
Ash trucks- (GP project) 4 round trips
Watkin Sand and Gravel trucks (their operation is on GP property beyond the end of L.V. Rd.)
Truck Trailer- 2 round trips
Truck- 1 round trip
Cars and Trucks- 54 single trips

Since the ash project is slated to be long term, the preceeding factors should be taken into consideration of the use of Little Valley Rd. as access to the site. Also, a permit has been issued for private logging in the v lley, which will add to the traffic, noise, dust, etc. GP has used L.V. Rd. for logging trucks and plans to continue to do so. There will be an increase in traffic with vehicles used for ash inspections and equipment maintenance.

If the residents of Sherwood Rd., which is slated to be the main access road, do not take kindly to the ash trucks driving in the area, it will mean that Little Valley Rd. will be used as the main access.

For the safety of everyone concerned, I suggest:

(1) A "Yield to oncoming traffic" sign on the single road, giving west bound traffic the right of way.
(2) Drainage ditches on the single road to be kept weed free for clear vision (county maintains the two way).
(3) Ash trucks to be timed not to drive on L.V. Rd. or Sherwood Rd. when school buses are on these roads. Buses have to turn around at the east end of L.V. Rd. on single lane.

The project is an interesting and timely one; more of our resources need to be recycled in California, especially into agriculture. Sue Leary obligingly drove me to the site and explained the project on Jan. 20, 1986. Thus far there has been a great deal of misinterpretation of the project being discussed in this area. In my opinion there is a great need at this point for some local publicity!

Sincerely wishing a successful project-

Gloria E. Davis

Gloria E. Davis
31280 Little Valley Rd.
Fort Bragg, CA 95437

STATE OF CALIFORNIA
GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
'ORTH COAST REGION
1000 CODDINGTOWN CENTER
SANTA ROSA. CALIFORNIA 95401
Phone: 707-576-2220

January 24, 1986

Gloria Davis
31280 Little Valley Road
Fort Bragg, CA 95437

Dear Mrs. Davis:

Enclosed is a copy of the staff report and tentatlve order on Georgia-Pacific's ash operation. Please note that the location originally scheduled for the January 30th Board Meeting has been changed to 9:00 a.m., January 30, 1986, at the Luther Burbank Center for the Performing Arts, 50 Mark West Springs Road. East Audftorium, Santa Rosa. Californfa.

Please cal1 me if you have any questions.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

Enclosures

WATER QUALITY
CONTROL BOARD
REGION 1

JAN 29 '86

☐ BK ____ ☐ RC ____
☐ CJ ____ ☐ ____
☐ FR ____ ☐ ____
☐ RT ____ ☐ ____
☐ JH ____ ☐ ____
☐ ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

January 26, 1986

Calif. Regional Water yuality Control Board
North Coast Region
1000 Coddingtown Center
Santa Rosa., 95401

To Whom It May Concern:

As: a property owner, tax payer and parent, I am concerned about the additional traffic that the Georgia Pacific Ash project is creating on Little Valley Road.

Little Valley Road is a, narrow, winding down hill road. Between the 1.30 county road marker and the end of the road, about 1.80 road marker, there are 24 childern under the age of 10 years. This count does not include the remainding 24 childern that are of school age. I realize that this is a public road, and I am also aware that Georgia Pacific has designated it as only on alternate route from Sherwood Rd.

I request that the board makes sure that Georgia Pacific uses this road only as an alternate route. I fear that it will Become a prime access road for their long term Ash Project endangering the childern who live on this rural, very country road.

Thank you.

Sincerely,

Mrs. Arden Eurley
31600 Little Valley Rd.
Fort Bragg, CA 95437

Susan Warner —

This is the letter I wish to be presented at the Jan 30, 1986 board meeting, regarding item number 14 listed on the agenda - "Georgia-Pacific Corporation Soil Amendment and Ash Disposal". Will you please see that this is given to the proper person for the meeting. Thank you for sending all the information; I am sharing it with others in the area.

Thanks again —

Gloria E. Davis

WATER QUALITY
CONTROL BOARD
REGION 1

JAN 27 '86

☐ BK ____ ☐ RC ____
☐ CJ ____ ☐ ____
☐ FR ____ ☐ ____
☐ RT ____ ☐ ____
☐ JH ____ ☐ ____
☐ BB ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

LOADS PER DAY OF ASH TO LITTLE VALLEY

	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30 31	MONTLY TOTAL
OCT. 85	66	6778	64 59	7994	79879	6 6897	169
NOV. 85	97 68	9664	786555	786	786	644 3	150
DEC. 85	72555	53 65	66665	68998	5 62	783 53	140
JAN. 86	32	53333	55442	5	54331		63

file: Georgia-Pacific - Ash Fort Amendment (Mendocino Co.)

Georgia-Pacific Corporation
Fort Bragg, CA
Provided by Jim O'Leary 1-30-86

Rec'd 1-30-86 SMV

CALIFORNIA REGIONRL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

INSPECTION COVER SHEET

(aPPend EPR FORM 3560-3 for NPDES facilities)

TO: 1) (Senior Engineer) Frank Reichmuth

2) (Inspector) —

3) Dennis Salisburr (for WDS computer inPut)

4) File

FROM: (Inspector) Susan Warner

DATE OF INSPECTION: 2/4/86 TIME: 10:45

FRCILIN NAME: GP. soil amendment

WDS FACILITY ID #: in 85030RMEN

TYPE OF INSPECTION:
- ☒ 1 - "A" Type Compliance InsPection
- ☐ 2 - "B" Type Compliance Inspection
- ☐ 3 - Follow-uP (noncompliance)
- ☐ 4 - Follow-uP tenforcement)
- ☐ 5 - ComPlaint Investigation
- ☐ 6 - Pre-requirement InsPection
- ☐ 7 - Miscellaneous Inspection

FACILITY EVALUATION:
- ☐ COMPLIANCE
- ☒ VIOLATION(S) (attach WDS violations inPut form)

SHORT INSPECTIDN COMMENT:

discharge of ash to surface streams

SIGNATURE: Susan Warner

Attach inspection narrative, samPling results, maP of facility, lumbermill checklist, and/or underground tank evaluation as aPPropriate.

CALIFORNIR REGIONRL WRTER QUALITY CONTROL BOARD
NORTH CORST REGION

WDS VIOLATIONS INPUT FORM

TO: 1) (Senior Engineer) Frank Reichmuth

2) (Project Officer) —

3) Dennis Salisbury (for WDS computer input)

FROM: (Project Officer) Susan Warner

SUBJECT: (Facility Name) GP, SOIL AMENDMENT

WDS FACILITY ID #: 1 B 8 5 0 3 0 R M E N

TYPE OF VIOLRTION:
- ☐ R - Violation of enforcement order
- ☐ B - Violation of compliance schedule
- ☐ C - Violation of effluent limitations
- ☐ D - Failure to Provide monitoring or other technical reports
- ☒ E - Noncompliance not included in "C"
- ☐ F - Violation of basin Plan Prohibition
- ☐ G - Unauthorized discharge not covered by waste discharge requirements

DRTE: _____ REPORT RECEIVED

DATE: 2/4/86 VIOLATION OCCURRED

DATE: 2/4/86 VIOLATION DETERMINED

VIOLRTION DESCRIPTION: discharge of ash to surface streams

ACTION RECOMMENDED BY PROJECT OFFICER

LEVEL A:	Telephone Contact	☐	☐
	Letter to Discharger	☐	☐
	Conference with Discharger	☐	☐
LEVEL B:	ACP: Rdministrative Civil Penalties	☐	☐
LEYEL C:	TSO: WDR Time Schedule	☐	☐
	CRO: Cleanup and Abatement Order	☒	☐
	CDO: Cease and Desist Order	☐	☐
LEVEL D:	RAG: Referral to Attorney General	☐	☐
	RDA: Referral to District Attorney	☐	☐
NO ACTION (Do not input violation on WDS)		☐	☐

RCTION DIRECTED BY SENIOR ENGINEER

CERTIFIED- Return Receipt Requested

February 4, 1986

Sue O'Leary
Forest Hydrologist
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Ms. O'Leary:

Enclosed is a copy of Waste Discharge Requirements Order No. 86-3 and the associated monitoring program for the ash soil amendment project on Little Valley. The Order was adopted at the January 30. 1986 meeting with two minor changes. Please call Susan Warner at this office if you have any questions.

Sincerely.

Benjamin D. Kor
Executive Officer

Enclosure

cc: Jerry Davis, Mendocino County Health Department
Gloria Davis
Mrs. Arden Hurlev
Mrs. Diane Aston

P 724 542 534

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Sue O'Leary
Georgia-Pacific Corporation
Street and No. 90 West Redwood Avenue
P.O., State and ZIP Code Fort Bragg, CA 95437

P.O. 1983-403-517

STATE OF CALIFORNIA

GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION
1000 CODOINGTOWN CENTER
SANTA ROSA, CALIFORNIA 95401
Phone: 707-676-2220

February 5. 1986

NOTICE OF ADOPTION

OF

WASTE DISCHARGE REQUIREMENTS

FOR

GEORGIA-PACIFIC CORPORATION
FORT BRAGG SOIL AMENDMENT

Mendoclno County

Waste Discharge Requirements for the above named discharger were adopted by the California Regional Water Quality Control Board, North Coast Region, on January 30, 1986. The requirements were adopted with minor changes.

Benjamin D. Kor
Executive Officer

Attachment

cc: SWRCB, Dlvlsion of Water Quality, Attn: Archie Matthews
DFG, Sacramento
DFG. Yountville
Mendoclno County Health Department
SEB, Santa Rosa
DWR, Central District, Sacramento
USDI, Fish & Wildlife Service. Sacramento
Dept. Parks & Recreation, Sacramento. Attn: James M. Doyle
EPI-Center, Office of Planning Analysts, Ukiah

CRLIFOWIR REGIONRL WATER QUALITY CONTROL BORRD
NORTH CORST REGION

INSPECTION COVER SHEET

(aPPend EPR FORM 3560-3 for NPDES facilities)

TO: 1) (Senior Engineer) Frank Reichmuth

2) (Inspector) —

3) Dennis Salisbury (for WDS computer input)

4) File

FROM: (Inspector) Susan Warner

DATE OF INSPECTION: 2/6/86 TIME: 0900

FACILITY NAME: GP, soil amendment

WDS FACILITY ID #: 1 B 8 5 0 3 0 R M E N

WPE OF INSPECTION:
- ☐ 1 - "A" Type Compliance Inspection
- ☐ 2 - "B" Type Compliance InsPection
- ☒ 3 - Follow-uP (noncompliance)
- ☐ 4 - Follow-uP <enforcement)
- ⊙ 5 - ComPlaint Investigation
- ☐ 6 - Pre-requirement Inspection
- ☐ 7 - Miscellaneous InsPection

FRCILITY EVALUATION:
- ☐ COHPLIRNCE
- ☒ VIOLATION(S)
  (attach WDS violations inPut form)

SHORT INSPECTION COMMENT:
threatened discharge of ash to surface streams

SIGNATURE: Susan Warner

Rttach inspection narrative, samPling results, maP of facility, lumbermill checklist* and/or underground tank evaluation as aPPropriate.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

Interoffice Communication

TO: (1) Frank Reichmuth
(2) file - G-P, Soil Amendment

DATE: February 10, 1986

FROM: Susan Warner

SUBJECT: Inspection of the Little Valley Soil Amendment site.

I inspected the area of the fly ash soil amendment site in Little Valley on February 4 and 6, 1986, with Sue O'Leary of Georgia-Pacific and Ed Bridges of the County Environmental Health Department. During my inspection on February 4, I found evidence of ash discharges to surface streams. Gcorgia-Pacific was apparently unaware of the discharges prior to my inspection. The discharges are in violation of their waste discharge requirements.

Ash was being stockpiled in area "W", as agreed. .However, more space was needed, so additional ash was stockpiled in long fingers in the upper part of area "A". A drainage ditch had been constructed around this area to intercept upgradient surface waters and carry the waters away from the stockpiled area. However, a large amount of water was not intercepted and came down along one of the ash 'fingers", eroding the base of the ash piles and carrying ash into the ephemeral stream "A" on tha attached sketch. Ash flows across the field to stream "A" were readily apparent. Ash moved down stream "A" a lengthy distance, but ultimately was filtered out before the stream became intermittent. The stream is clogged with tules, grass and other vegetation, providing a filter for the ash particulates.

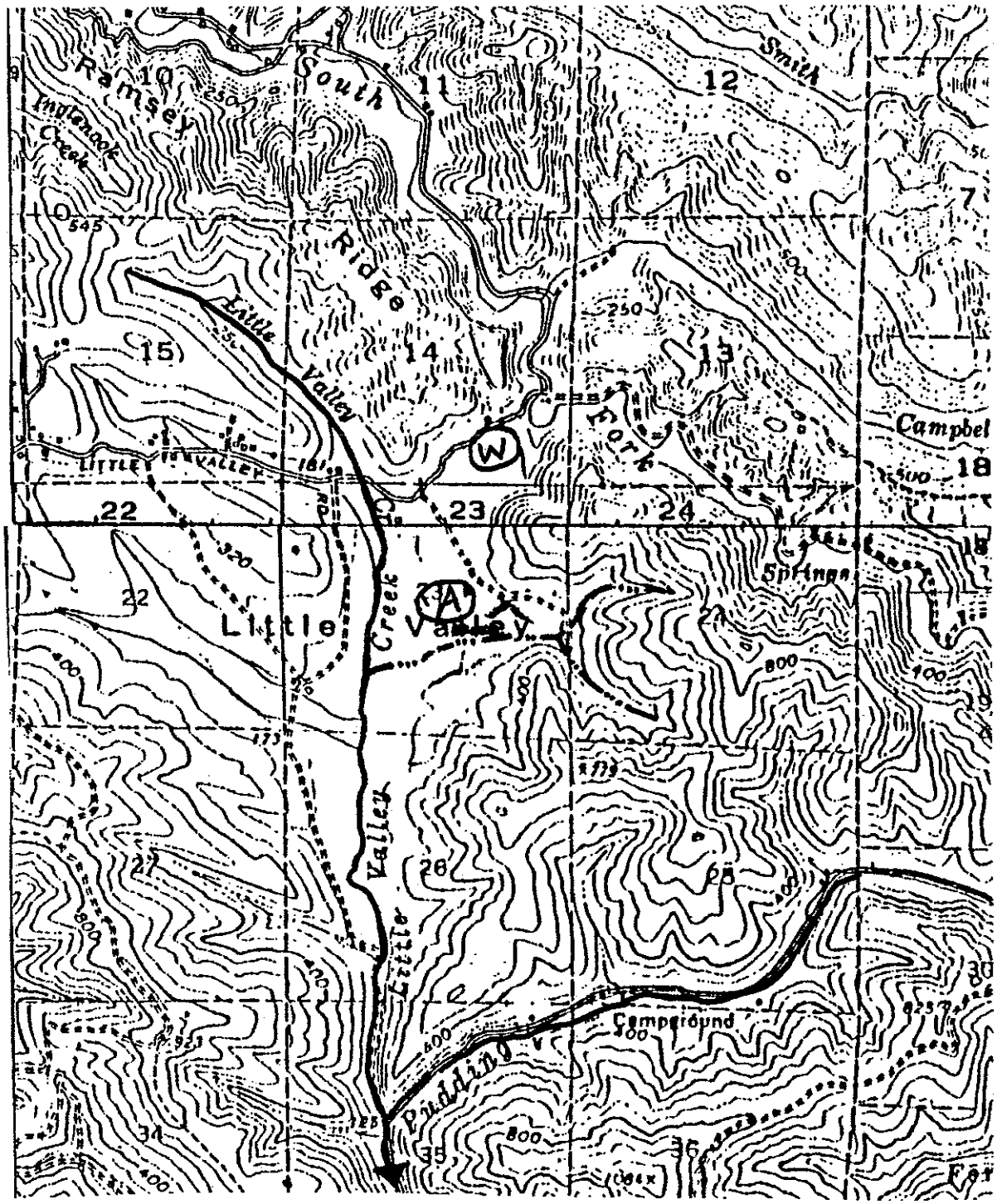
Further below the ash stockpiles is the area of active soil incorporation. A limited area was tilled, incorporating the ash. A larger area had ash spread to a depth of about one foot. The unincorporated ash had also been placed immediately adjacent to an ephemeral stream (contrary to their proposal in October). The ash was carried by runoff into the ephemeral stream, filling it. Evidence of ash passage downstream could be seen in pockets further down the stream channel until it reached a fork of Litle Valley Creek. Here the high flows in the creek made it impossible to detect ash residue. However, ash was found all the way to the creek.

The ephemrral stream "B" was clogged with ash from one to two feet deep. Based on field measurements, about 7,500 cubic feet of ash remained in the ephemeral stream. More ash likely washed downstream.

On February 6, 1986, I inspected the area again. Georgia-Pacific had used a back-hoe to remove the ash from the ephemeral stream,

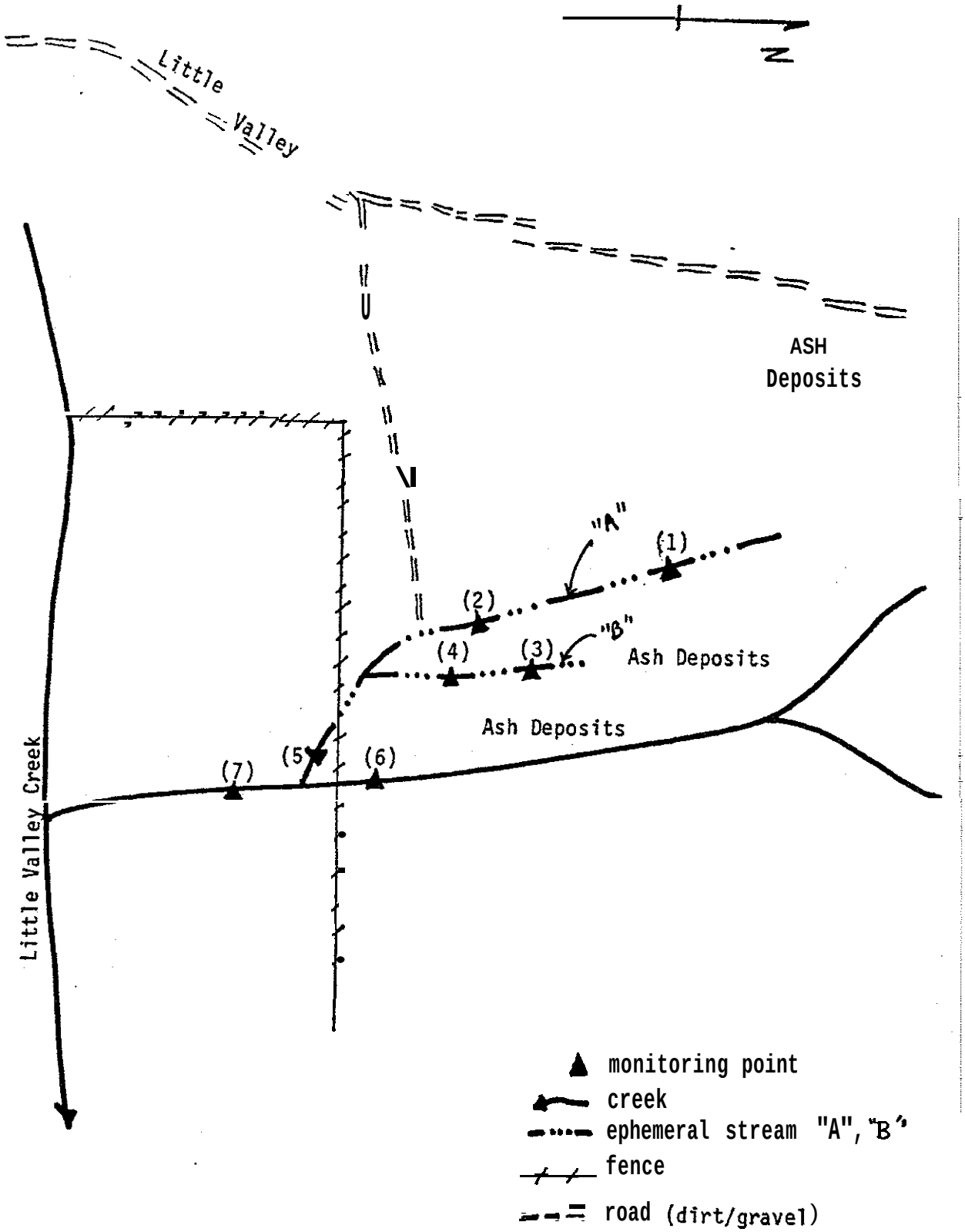
and had built a drainage ditch to intercept the flow before reaching stream "B". However, the drainage ditch will have to be dispersed through filter fences in the lower part of their field, or it will act as an ash discharge point. I informed Georgia-Pacific of this.

I am concerned about this site because (1) G-P was unaware of the discharge until my inspection; (2) G-P indicated that they only spent 2 or 3 days incorporating ash in October (recall that this was a semi-draught year), then just stockpiled or spread it; and (3) we had previous stated our concerns for avoiding rainfall dircharges. Georgia-Pacific was at best negligent in failing to adequately incorporate or stabilize the ash. I recommend issuance of a cleanup order and consideration of penalties.



(W) Area of stockpiling, approved

(A) Area of soil incorporation


N
Little Valley
ASH Deposits
"A"
(1)
(2)
(3)
(4)
"B"
Ash Deposits
Ash Deposits
(5)
(6)
(7)
Little Valley Creek
monitoring point
creek
ephemeral stream "A", "B"
fence
road (dirt/gravel)

NOT TO SCALE

CERTIFIED- Return Receipt Requested

February 11, 1986

Sue O'Leary
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Ms. O'Leary:

My staff inspected the area of your fly ash so11 amendment project in Little Valley on February 4 and 6, 1986. Those inspections revealed that ash had been discharged to surface streams as a result of your ash placement activities. Accordingly. I am issuing Cleanup and Abatement Order No. 86-43 pursuant to Section 13304 of the Water Code. for the ash soil amendment site in Little Valley. I am concerned that ash was not incorporated in a timely faslon, leading to the discharge of ash to surface streams in the area. Such a discharge of ash is contrary to your waste discharge requirements, and contrary to the technical plan you submitted last October which outlined the proposed activities.

I am aware that you took imnediate steps to correct the problem once you became aware of the discharge. However, Georgia-Pacific was apparently unaware of the discharge until my ataff inspected the area. Consequently. more oversight of this project is needed in the future. You will note that Order No. 86-43 requires daily inspection of the area during rain events. I hope such Increased overslght will prevent a recurrence of this problem.

The Order rewires submittal of a technical report and implementation of a new monitoring program. Please call Susan Warner of my staff if you have any questions regarding these Orders.

Sincerely,

Benjamin D. Kor
Executive Officer

Enclosure

cc: Jerry Davis
Ed Bridges
Gloria Oavis

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2. If you
article, u

3. If you w
Form 3811
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4. If you wan
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5. Enter fees for
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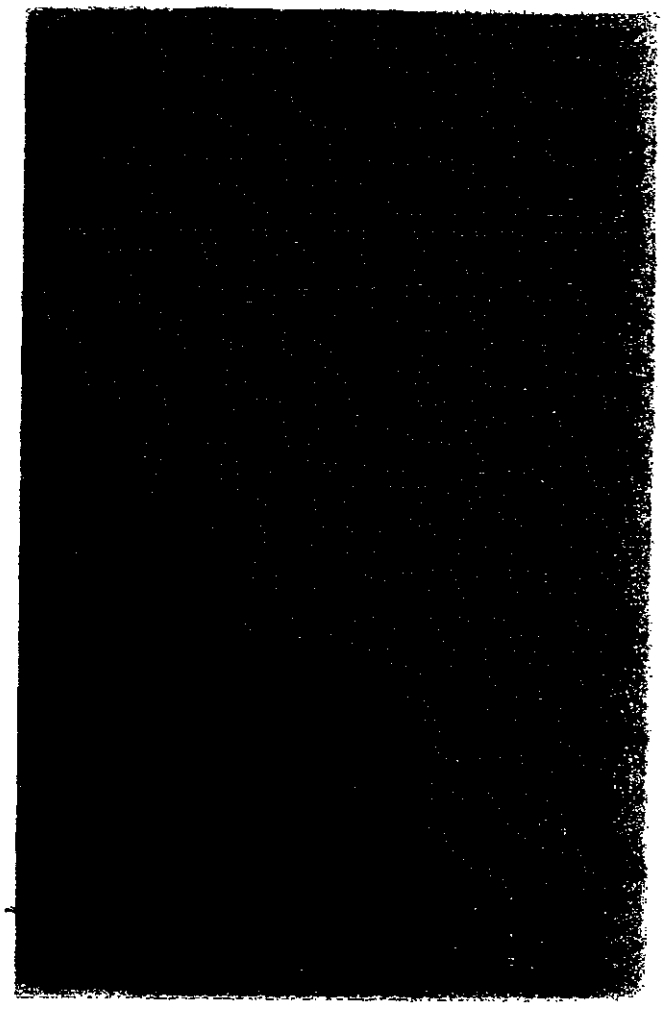
6. Save this receipt



P 724 542 530

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See *Reverse*)

Sent to Sue O'Leary Georgia-Pacific Corporation	
Street and No. 90 West Redwood Avenue	
P.O., State and ZIP Code Fort Bragg, CA 95437	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing whom and Date Delivered	
Return receipt showing to whom. Date, and *Address* of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Fo3800, Feb.198 2 ★ U.S.G.P.O. 1983-403-517

STATE OF CALIFORNIA GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION
1000 CODDINGTOWN CENTER
SANTA ROSA. CALIFORNIA 95401
Phone: 707-576-2220

February 13. 1986

NOTICE

CLEANUP AND ABATEMENT ORDER NO. 86-43

FOR

GEORGIA-PACIFIC CORWRATION
FORT BRAGG ASH SOIL AMENDMENT

Mendocino County

Attached is a copy of the subject Cleanup and Abatement Order No. 86-43.

Benjamin D. Kor
Executive Officer

Attachment

cc: Division of Water Quality, Attn: Archie Matthews
DFG, Sacramento
DFG, Yountville
Sonoma County Health Department
SEB, Santa Rosa
DWR, Central District, Sacramento
USDI, Fish & Wildlife Service, Sacramento
EPA, W-3-2
All Board Members

February 26, 1986

Donald L. Kirkpatrick
Hendocino Unified School District
P.O. Box. 1154
Hendocino, CA 95460

Dear Hr. Kirkpatrick:

I received your letter proposing to use Georgia-Pacific fly ash on the playing field within the new track at the high school. I inspected the area of the ash soil amendment use and discussed your proposed plans with Mr. Jack Millis. He has indicated that you intend to incorporate the ash upon delivery, and will not stockplle any ash. Further. you intend to keep the amended-in ash moist with your new sprinkler system until the vegetation becomes established. This is an important measure which should be strictly followed to avoid ash being blown around. Airborne ash complaints have been a serious problem at previous ash use areas. You should be particularly cautious on receiving and incorporating ash to ensure it is sufficiently moist to avoid blowing since there are several nearby residences.

In practical terms, this means that you should not accept delivery of ash on the days when it is too windy or the equipment is not on hand to incorporate the materials promptly into the soil. I have also been informed by Mr. Millis that you will be using two different fertilizers to add nitrogen to the soil as an aid in establishing vegetation. Vegetation must be established to avold erosion of ash and discharge to waters of the State. Adding fertilizer is a critical step to ensure adequate plant growth when using ash and sawdust as soil amendments.

I have concluded from my review of your proposal that the project could go forward with minimal or no water quality impacts. Accordingly. waste discharge requirements and associated fees will be waived for the project. However, you should submit a brief letter report at the conclusion of the project to let us know that you have finished and are no longer accepting fly ash wastes. Please call me if you have any questions in this matter.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

cc: Ed Bridges, Hendocino County Health Department, Fort Bragg
Jerry Davis, Mendocino County Health Department, Uklah

Georgia-Pacific Corporation 90 Wed Redwood Avenue
Fort Bragg, California 91437
Telephone (707) 964-5651

March 10, 1986

Received
3/11/86
SOM

Mr. Benjamin D. Kor
North Coast Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find Georgia-Pacific's technical report as required under Cleanup and Abatement Order 86-43.

This report outlines activities conducted at the company's soil amendment project for the period October 1, 1985 to February 7, 1986 as specified in Order 86-43.

Sincerely,

Sue O'Leary

Sue O'Leary
Forest Hydrologist
WESTERN WOOD PROD MFG
California Wood Products

SO:mm
Encl.

TECHNICAL REPORT FOR GEORGIA-PACIFIC ASH SOIL AMENDMENT PROJECT

This report will address the four items identified in Cleanup and Abatement Order 86-43 dated February 11, 1986.

To ensure that all points are covered, the report is arranged to parallel Drder 86-43.

Order 66-43:

1. "fake immediate steps to cleanup ash deposit in drainage--ways;

2. Take immediate steps to re-raute drainage to abate the threat of continued discharge of ash with rainfall events;"

G-P response:

Ash was discovered in an ephemeral drainage on 2-4-66 by Sue O'Leary (G-P) and Sue Warner (Water Quality). The storm, which began 1-30-86 and ended 2-4-86, deposited approximately 5.05 inches of precipitation on the area. This was the first high intensity, long duration storm of wateryear 1985-86.

Immediately following the inspection, cleanup activities were organized and implemented from 2-4-86 to 2-7-86. The activities in the lower field area included the removal of ash in the ephemeral drainage with a backhoe, installation of three check dams and placement of straw bales at the end of the draw. The function of the check dams are to promote the settling of ash that may enter the ephemeral draw. The straw is to act as a final filter- prior to water leaving the ephemeral draw. One problem encountered almost immediately with the straw was the eating of the straw by the cnws in the adjacent field. Additional straw was brought in arid placed as far- out of reach of the cows as possible.

In order to reroute drainage to abate the threat of continued discharge with rainfall events, a ditch was dug parallel to the ephemeral draw and is located parallel between the ash spread on the field and the ephemeral draw. Water and ash collected in future storms in this ditch will be dispersed onto the completely amended sect-ion of the lower- field iri Area A.

In the upper field section of Area A, siirface drainage ditches were dug to divert. stormwater runoff around the ash stored iri the piles. Slider of these activities will be submitted within the next two weeks.

Order 86-43: 3. "Daily ash deposition and incorporation activities for the period of October 1, 1985 through February 7, 1986."

G-P Response: General Information:

According to our records, ash deposition began at Little Valley on October 4, 1985. Records are kept on a daily basis as to how many loads of ash are taken to the site. See enclosed chart. Daily rainfall amounts for the period September 1, 1985 through February 7, 1986 are enclosed.

Ash Deposition and Incorporation Activities October 1, 1985 Through February 7, 1986

1. The contractor's disk arrived in Fort Bragg on September 27, 1985.

2. Ash was first taken to the site on October 4, 1985 and was disked into the southwest corner of Area A until October 25, 1985. The contractor's disk was returned on October 28, 1985 and arrangements were made that week to pickup a disk plow from Merced, California that is owned by U.C. at Davis.

3. The people that were utiliziny the Davis plow, underestimated how long their' project would take and delayed the pickup of the disk by sever-a1 weeks.

4. In the meantime, ash was being delivered and spread to the east of the totally amended section of Area A. The field had bean previously disked with the contractor's disk and it had been anticipated that the U.C. Davis disk would be available the first week in November.

5. The disk was picked up from Merced, California on November 18, 1985 a!-id adjustments were made to the disk and cat to enable proper operation. A part broke on the cat and a new part waa not received until the end of the week, making use of the disk-plow impossible.

6. Everything was set to go the week of November 25-29,, 1985 when it rained. It rained 3.30 inches that week, making it impossible to get the equipment into the field (road rocking not completed to access the area) and the disk-plow would have gotten stuck in the clay soils.

7. Beginning the week of November 25, 1985, all ash is directed to storage Area W.

2 disk to the site

8. Ash is directed to storage Area W and placed into rows approximately twenty feet wide, three to four feet deep with twenty foot spacings between rows. The open space was left between rows so ash can be spread and disked into the ground easier and to not overload the storage area such that reloading of ash would have to occur.

9. After the first of the year, it became apparent that Area W was reaching its capacity for it to be effectively amended without having to reload ash thia summer.

10. On approximately January 7, 1986, ash was taken to the upper field in Area A and raws for storage were begun. During this time, it became apparent that the pattern of a week to ten days of rain, followed by a similar length of dry weather, was going to occur all winter, and *that* it would be best to stockpile the ash rather than create a larger area of spread out ash that probably would not be able to be incorporated.

11. Storms of one to two arid a half inches of rainfall occurred in January and while saturating the soils of the area, did not cause ash to migrate off-site. It wasn't until 'the late January, early February storm deposited 5.05 inches of rainfall that large quantities of ash entered the ephemeral drainage and flowed outside the .immediate amendment area.

12. Retails of the events from the storm of 1-30-86 to 2-7-86 are outlined in Points 1 and 2 of this report. (See Page 1)

13. Activities since February 7, 1986 include %he placement of several barricades of straw bales to act as temporary holding ponds/barriers/dispersion devices to keep the ash on site. These have all been flown in via helicopter since the clay soils make truck access impossible. Employees with shovels have been digging out ash collected behind straw tales.

14. Currently, the company is stockpiling the ash and routing surface drainage around the ash so as to keep the material contained in one area. No soil amending is planned until the winter storm season ceases.

LOADS PER DAY OF ASH TO LITTLE VALLEY

	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30	31	MONTLY TOTAL
OCT. 85	66	6778	64 59	7994	79879	6 6897		169
NOV 85	97 68	9664	78655	5 786	786	644 3		150
DEC. 85	7255	53 65	6665	68998	5 62	783 53		140
JAN. 86	32	53333	5542	42 5	54331	6996		102
FEB 86	8 653	14 6	6575	5998	812 79	11 10 11		153
MARCH 86								

February 86 RAINFALL

GP - Fort Bragg

DATE	TIME	AMOUNT	REMARKS
2-1		1.6	
2-2		2.0	
2-3		.65	
24		.20	
2-5		0	
2+6		0	
2-7		0	
2-8		0	
2-9		0	
2-10		0	
2-11		0	
2-12		.10	
2-13		.66	
2-14		.84	
2-15		1.34	
2-16		.76	
2-17		1.55	
2-18		.64	
2-19		1.02	
2-20		.40	
2-21		0	
2-2 t		.05	
2-23		.10	
2-24		.15	
2-25		0	
2-26		0	
2-27		0	
2-28		0	
		12.06 TOTAL	

January 86 RAINFALL

GP - Fort Bragg

	TIME	AMOUNT	REMARKS
1-1		.02	
1-2		.02	
1-3		.18	
1-4		.30	
1-5		.18	
1-6		0	
1-7		0	
1-8		0	
1-9		0	
1-10		0	
1-11		0	
1-12		0	
1-13		.72	
1-14		.82	
1-15		.82	
1-16		.24	
1-17		.07	
1-18		0	
1-19		.05	
1-20		0	
1-21		0	
1-22		0	
1-23		.70	
1-24		0	
1-25		0	
1-26		0	
1-27		0	
1-28		0	
1-29		0	
1-30		.30	
1-31		.30	
		4.72 TOTAL	

December 93 RAINFALL

GP- Fort Bragg

DATE	TIME	AMOUNT	REMARKS
12-1		83	
12-2		.16	
12-3		0	
12-4		.70	
12-5		24	
12-6		.34	
12-7		.22	
12-8		.43	
12-9		0	
12-10		.01	
12-11		0	
12-13		0	
12-14		0	
12-15		0	
12-16		0	
12-17		0	
12-18		0	
12-19		0	
12-20		0	
12-21		0	
12-22		0	
12-23		0	
12-24		0	
12-25		0	
12-26		0	
12-27		0	
12-28		0	
12-29		.35	
12-30		.01	
12-31		.08	
		3.37 total	

November 85 RAINFALL

GP-Fort Bragg

DATE	TIME	AMOUNT	REMARKS
11-1		0	
11-2		0	
11-3		0	
11-4		0	
11-5		0	
11-6		0	
11-7		0	
11-8		0	
11-9		.32	
11-10		0	
11-11		0	
11-12		0	
11-13		0	
11-14		0	
11-15		.40	
11-16		0	
11-17		.03	
11-18		0	
11-19		0	
11-20		0	
11-21		0	
11-22		0	
11-23		.15	
11-24		.23	
11-25		0	
11-26		0	
11-27		.38	
11-28		1.30	
11-29		1.62	
11-30		0	
		4.43 TOTAL	

October 1985

GP Fort Bragg

DATE	TIME	AMOUNT	REMARKS
-		0	
10-2		0	
-		0	
10-4		0	
-		0	
10-		6	
to-7		0	
10-8		0	
10-9		0	
10-10		0	
10-11		0	
10-12		0	
10-13		0	
10-14		0	
10-15		0	
10-16		0	
10-17		0	
10-18		0	
10-19		0	
10-20		1.42	
10-21		.58	
10-22		.16	
10-23		0	
10-24		.01	
10-25		0	
10-26		0	
10-27		0	
10-28		0	
10-29		0	
10-30		0	
10-31		0	
		2.17 TOTAL	

September 1985

GP Fort Bragg

DATE	TIME	AMOUNT	REMARKS
9-1-85		.03	
9-2		0	
9-3		0	
9-4		0	
9-5		0	
9-6		.06	
9-7		.06	
9-8		.15	
9-9		.02	
9-10		0	
9-11		0	
9-12		0	
9-13		0	
9-14		0	
9-15		0	
9-16		0	
9-17		.02	
9-18		0	
9-19		0	
9-20		0	
9-21		.01	
9-22		0	
9-23		0	
9-24		0	
9-25		0	
9-26		0	
9-27		0	
9-28		0	
9-29		0	
9-30		0	
		.35 TOTAL	

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

i-

April 15, 1986

WATER QUALITY
CONTROL BOARD
REGION I

APR 17 '86

☐ BK ____ ☐ RC ____
☐ CJ ____ ☐ ____
☐ FR RC ☑ SWRCB
☐ RT ____ ☐ ____
☐ JH ____ ☐ ____
☐ BB ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

Mr. Benjamin D. Kor
North Coast Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the March report for the Georgia-Pacific Soil Amending Project as per Revised Monitoring and Reporting Program 86-3.

Sincerely,

Sue O'Leary

Sue O'Leary
Forest Hydrologist
WESTERN WOOD PROD MFG
California Wood Products

SJO:mm
Encl.

00

MARCH REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by week - Cubic Yards of Ash - deposited at upper field of Area A

March 1-8	1100
March 9-15	920
March 16-22	1060
March 23-31	1160
	4240
Number of Treated Acres (Area A)	≈ 4 Acres
Tons of Ash Stockpiled (Area W)	≈ 586 tons

Daily Precipitation Measurements	PPT (Inches)
March 1	0
2	0
3	0
4	0
5	0
6	0
7	.50
8	2.25
9	.50
10	1.00
11	.36
12	.55
13	.50
14	0
15	1.00
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	.22
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	.22

No ash was incorporated this month because soil conditions were too wet to enable equipment to be used.

Stormwater Runoff Monitoring

A large storm occurred over the period of March 6-13, 1986. Sampling was conducted on March 6, 7 and 10 and reflects the peak flow of the storm. No new additions of ash to the stream system were observed - hay bales appeared to be containing ash and allowing the water to flow past.

pH Measurements	Location						
Date	1	2	3	4	5	6	7
03/06/86	6.1	6.2	7.3	7.3	6.7	7.0	7.2
03/07/86	6.45	6.35	6.65	7.05	6.7	6.7	6.7
03/10/86	6.2	6.4	6.65	6.65	6.8	6.55	6.8

Suspended Solids	Location						
Date	1	2	3	4	5	6	7
03/10/86	15.1	16.3	37.6	42.1	27.5	20.2	23.3

COD	Location						
Date	1	2	3	4	5	6	7
03/07/86	30	43	39	50	41	51	37

Alpha
Alpha Analytical Laboratories Inc. ■ 860 Waugh Lane. H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 W. Redwood Ave.
Ft. Bragg, CA. 95437
ATTN: Sue O'Leary

DATE COLLECTED 3-7-86
DATE IN LAB 3-10-86
COLLECTED BY O'Leary
SAMPLE TYPE Water

LABORATORY NO.:	6-1218	6-1219	6-1220	
CLIENT I.D. :	Little Vly 8 1	Little Vly # 2	Little Vly # 3	
COD	30	43	39	mg/L

Alpha
Analytical Laboratories. Inc.

LABORATORY DIRE TOR

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane. H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 W. Redwood Ave.
Ft. Bragg. CA. 95437
ATTN: Sue O'Leary

DATE COLLECTED 3-7-86
DATE IN LAB 3-10-86
COLLECTED BY O'Leary
SAMPLE TYPE Water

LABORATORY NO.:	6-1221	6-1222	6-1223	
CLIENT I.D. :	Little Vly # 4	Little Vly # 5	Little Vly # 6	
COD	50	41	51	mg/L

Alpha
Analytical Laboratories, Inc.

Bruce L. Olson 3-21-86
LABORATORY DIRECTOR DATE

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 W. Redwood Ave.
Ft. Bragg, CA. 95437
ATTN: Sue O'Leary

DATE COLLECTED 3-7-86
DATE IN LAB 3-10-86
COLLECTED BY O'Leary
SAMPLE TYPE Water

LABORATORY NO.: 6-1224
CLIENT I.D. : Little Vly # 7

COD	37	mg/L

Alpha
Analytical Laboratories, Inc.

Bruce L. Lowe 3-21-86
LABORATORY DIRECTOR DATE

April 17, 1986

Mr. Jack Cox
P.O. Box 1389
Ukiah, CA 95482

Dear Mr. Cox:

Enclosed for your information is a copy of Subchapter 15 Discharge of Waste to Land (the guidance document for waste disposal sites).

Also enclosed are the forms, fee schedule, and instruction sheet for the application for Waste Discharge Requirements.

In January of this year our Board adopted Waste Discharge Requirements for Georgia-Pacific, Fort Bragg Soil Amendment. Since that operation is similar to the one you are proposing, I have also enclosed a copy of the Georgia-Pacific Waste Discharge Requirements far you to review. Georgia-Pacific submitted a detailed technical report to the Regional Board as a necessary part of this application for Waste Discharge Requirements. That report may be reviewed by you or your consultant if you wish.

Subsequent to adoption of Requirements for Georgia-Pacific's "Ash Soil Amendment" project, staff found violations requiring the issuance of an enforcement action, Cleanup and Abatement Order No 86-43. In response to your questions about possible "negative aspects" to the operation of an ash disposal facility, I have also enclosed a copy of that enforcement Order.

If you have additional questions or if I my be of further assistance, please call me.

Sincerely,

David M. Snetsinger
Sanitary Engineering Associate

DMS:kad

Enclosures

Re'd 5/16/86

[illegible] ESTABLISHMENT PROGRAM

Early Fall of 1986

1. Our cover crop will be a mixture of clovers and subclovers so as to provide nitrogen to the soil.

2. We will be fertilizing this clover once pet- year.

Winter of 1985

According to Rod Shippy, Farm Advisor, Ukiah, it is getting Coo late in the year to plant clover for year round cover and rates of application are unknown for soils amended with material with a high carbon content. However, Rod suggested that we set out several test plots to be able to develop asowing rate for next fall, as well as to indicate how clover will do on the Little Valley soils.

Therefore, G-P proposes the following:

1. Plant annual rye grass (25 lbs/acre) on all areas that have been disk/plowed by February 1, 1966. This will provide a cover crop of vegetation to minimize runoff until clovers can be planted next fall.

2. Create four (4) 10' X 10' plots and give the plots the following treatments.

   Plot 0 - Control - no application of clover
   Plot 1 - Apply clover mix at the rate of 20 lbs/acre
   Plot 2 - Apply clover mix at the rate of 40 lbs/acre
   Plot 3 - Apply clover mix at the rate of 60 lbs/acre

3. Rod suspects that a clover application rate of 40 lbs/acre will be sufficient and suggests that we try several fertilizers and rates of fertilizer application on several additional plots. Our proposal is to create the following plots.

   Plot 4 - Control - clover applied at rate of 40 lbs/acre
   Plot 5 - Clover (40 lbs/acre) + Urea at 50 lbs/acre
   Plot 6 - Clover (40 lbs/acre) + Urea at 100 lbs/acre
   Plot 7 - Clover i30 lbs/acre) + gypsum at 50 lbs/acre
   Plot 8 - Clover (40 lbs/acre) + gypsum at 100 lbs/acre
   Plot 9 - Clover + potassium chloride at 50 lbs/acre
   Plot 10 - Clover + potassium chloride at 100 lbs/acre
   Plot 11 - Clover + Urea, gypsum, potassium chloride at 50 lbs/acre
   Plot 12 - Clover + Urea, gypsum, potassium chloride at 100 lbs/acre

Plots identified in points two and three above would be put out between January 6-February 1, 1986 in an area that has been amended. Growth and development observations, measurements and photographs will be taken on a weekly basis.

The agronomist at the Hopland Field Station is conducting a clover research study on coastal soils and will be making several observations. Reports will be sent to Water Quality for your information.

4. based on the results of the plot studies, a sowing and fertilizer schedule will be established for next year.

LONG TERM DISPOSAL/USAGE OF ASH AND LITTLE VALLEY SITE

I have estimated that if we treat 80 acres per year, and we have 300 acres, the site at Little Valley could be Utilized for 3.75 years. Furthermore, all of the agricultural advisors think that each 80 acres area could be treated two times which would increase the life of the site to 7.5 years. I intend to take soil tests after one year to assess if there are any changes in soil conditions. These results may indicate whether the two applications per 80 acres are appropriate for the Little Valley soils. We would run the same tests as those included in this report.

In addition, we are pursuing other avenues of use for-the fly ash. I heard from Ross Scherer (buyer) +or Kingsford charcoal. and he informs me that the ash samples collected from the primary collectors contain too much sand, silt, and dirt (inerts) for their needs. We are working with Lloyd's Specialty Products, in the Bay krea on the use of this material for pigments and final word on this possibility should be in by February 1986.

We are conducting a geotechnical investigation for renewal of our current wood waste site and are considering the option of increasing its current capacity. Originally, it was approved for 100 acres. To date, we have opened approximately 40 acres for use. Groundwater conditions to the east will probably determine whether this is possible or not. Aerial flights and mapping are being conducted now by CH2M Hill and final engineering will be complete in the Fall of 1986. We are also exploring other landfiil site options with preliminary investigations to begin in February on one or two selected locations.

SOIL CHEMISTRY/ANALYSIS, ETC.

Results are included for your use. I would like to discuss these with you upon my return.

New Evidence Reported of Dioxin as Health Hazard

By David Perlman
Science Editor

The controversy over the health hazards of dioxin emerged anew yesterday as government scientists reported fresh evidence that the toxic chemical may damage the human immune system.

At the same time, a New York physician calculated that during their first year of life many breast-fed infants in America may consume up to 18 times more dioxin than federal limits specify as safe for lifetime human exposure.

In California, public health doctors disclosed that they have begun meeting regularly with other state officials to evaluate the hazards of dioxin exposure from more than 30 large municipal garbage incinerators planned throughout the state. The incinerators would be used to generate electricity by burning municipal wastes.

According to Dr. Alex Kelter, chief of environmental health hazard evaluation for the California Department of Health Services, today's "high technology" energy generation plants that burn wastes can be major sources of many forms of dioxin

However, the potential dangers of the various dioxins are not known with any certainty. Kelter said. He added that the state's scientists have conferred with toxic waste experts from Canada, Germany and Sweden in an effort to provide safety recommendations for the Air Resources Board, the California Energy Commission and other agencies.

The job of detecting level of the 210 different forms of dioxin — including the 12 or 15 that are closely related to the most toxic TCDD — represents "state-of-theart sc ence," said Dr. Robert Stephens the state Health Department's ha ardous materials laboratory. Scie tists are still debating what levels exposure are unsafe and wheth the chemicals are more likely to s off cancer or to damage the ir mune system.

Millions of dollars in lawsui have been filed by people expose to the highly poisonous compour in places like the now-abandon Missouri town of Times Beach. Dis bled Vietnam war veterans ha

Page 4 Col. 1

SF Chronicle Fri. April 18, 1986

New U.S. Evidence Reported On Dioxin as Health Hazard

From Page 1

charged that dioxin in Agent Orange, the chemical spray used to defoliate enemy jungle hideouts, caused skin diseases, cancer and birth defects in their children.

in animals even low levels of dioxin are known to cause many cancers, while liver damage and other defects have been associated with dioxin in humans. Heavy dioxin exposure is known to cause at least one serious and disfiguring skin disease, called chloracne.

The role of dioxin exposure in any form of cancer or immune system defect is still controversial and is under world-wide scientific study in scores of research centers.

The manufacturers of pesticides, weed killers, wood preservatives and other chemical products where the many forms of dioxin are used deny there is any proof that dioxin is a major health hazard at the levels of exposure reported so far.

Yesterday, a team of researchen from the federal Centers for Disease Control in Atlanta, St. Louis University Medical School and the Missouri Health Department reported results of one of the mat exhaustive tests ever developed to assay the hazards of any environmental pollutant. Their study, published in the Journal of the American Medical Association, described detailed examinations of 154 people in a Missouri mobile home park who were exposed for several years to dioxin in the form called 2,3,7,8 TCDD.

The test subjects were matched with men. women and children living in another mobile home park where no dioxin has ever been detected. The two groups were virtually identical in race, employment, history of illnesses, use of pesticides and use of alcohol or tobacco.

Altl ıg the scientists said that the tests found no evidence of outright disease associated with dioxin, they did note significant damage to the immune systems of the exposed people and abnormalities in their liver functions.

Those defects, said the researchers, should be considered early warning signs of disease. The xi-. entists said that it ls important to continue long-term monitoring of the exposed group in order to detect future VV of illnesses associated with the toxic compound.

The federally sponsored study was conducted in Gray Summit, Mo., where sludge mixed with waste oil had been sprayed 15 years ago on the dirt road of a mobile home park to keep down dust. The sludge came from a plant that was making a germ-killing compound called hexachlorophene, and it was contaminated with the mat toxic form of dioxin — 2,3,7,8-TCDD.

The principal authors of the report were Dr. Richard E. Hoffman of the Centers for Disease Control, Dr. Karen B. Webb of St. Louis University and Wayne F. Schramm of the Missouri Health Department

A representative of Dow Chemical Corp., whose products have been involved in the dioxin controversy for years. said there is no disagreement that dioxin is widespread in the environment '% low levels," but insisted that it is "good news" that the residents of the exposed community studied by the CDC showed no signs of outright illness at all.

New figures also reported on amount s f dioxin consumed by breast-fed infants

The CDC's standard for dioxin exposure considers one part per billion in soil "a level of concern" for the health of people in residential areas. Investigators at the mobile home park found soil contamination level, there higher than 1000 parts per billion, and levels up to 11 parts per billion inside many homes

Dioxin, which was widely use until several years ago, ls highly persistent and trace amounts ere found today in the fat of fish, livestock and human tissues.

In New York this week: Dr. Arnold Schechter, professor of preventive medicine at the State University of New York's Upstate Medical Center, said the excess quantities of TCDD dioxin ingested by the average breast-fed American baby during its first year of life present "a potential human health problem."

Schechter reported hls calculations at a meeting of the American Chemical Society and said they were based on a projection of the average dioxin levels found in human fat during studies conducted in the United Stater and Canada.

The fat samples studied came from 200 adults, plus another 900 sampled by CDC investigators, Schechter said. He plans detailed studies of dioxin levels in human breast milk this year.

However. CDC officials said yesterday that there is no proof that the amount of dioxins a nursing infant will receive constitutes a health hazard.

"No matter what a mother does, her baby will be exposed to a certain amount of dioxins." said Dr. Renate Kimbrough, a CDC medical officer who has studied the effects of chemicals in mothers' milk for several years. "The benefits of breast feeding far Outweigh the risks."

Those benefits, she said, include major protection for the baby's immature Immune system, better nutrition, and the psychological advantages of closeness lor both the mother and the infant.

May 13, 1986

Cristy Blackfield
Box 284
Comptche, CA 95427

Dear Ms. Blackfield:

Enclosed are the copies you requested from the Georgia-Pacific Corporation, Fort Bragg Soil Amendment file. Please remit a check in the amount of $3.78. made payable to the State Water Resources Control Board, to cover the cost of the copies. Thank you.

Sincerely,

Patricia C. Gorup
Stenograher

Enclosures

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 91437
Telephone (707) 964-5651

May 15, 1986

Rc'd 5/16/86

Mr. Benjamin D. Kor
California Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the April report for the Georgia-Pacific Soil Amending Project as per revised Monitoring and Reporting Program 86-3.

Sincerely,

Sue O'Leary

Sue O'Leary
Forest Hydrologist
WESTERN WOOD PRODUCTS MFG
California Wood Products

SO:mm
Encl.

Disking of Field A began on May 8, 1986 and by May 31, 1986, approxiamtely 35 acres had been disked.

Ash was applied and incorporated on approximately 10 acres during May.

Stormwater Runoff Monitoring

No monitoring was conducted due to lack of precipitation.

MAY REPORT

GEORGIA— PACIFIC CORPORATION

FORT RRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by wee): - Cubic Yards of Ash - deposited at upper field of Area A.

May 01-03	380
May 04-10	840
May 11-17	680
May 18-24	
May 25-31	

Number of Treated Acres (Area A) ≈ 10 A res
Tons of Ash Stockpiled (Area W) ≈ 586 tons

Daily Precioitation Measurements		PPT (Inches)
May	1	0
	2	.30
	3	0
	4	0
	5	.20
	6	.13
	7	.18
	8	.03
	9	0
	10	0
	11	0
	12	0
	13	0
	14	0
	15	0
	16	0
	17	0
	18	0
	19	0
	20	0
	21	0
	22	0
	23	0
	24	0
	25	0
	26	0
	27	0
	28	0
	29	0
	30	0
	31	0

17, 1986

839-1948

Dear Ms. Warner,

Enclosed is a copy of a letter I have sent to Gerald Davis. I realize that at this point there does not seem to be health problem associated with the amount of dioxin found in the wood waste ash. This is, of course, very good news, since this ash has been used in commercial compost products, as land fill at local schools, and has on occaision been blown about town, and introduced into water systems.

It is because of the extensive distribution of the ash that I am interested in resolving in my own mind whether there has been any toxic contamination due to the ash. Other residents in my area have expressed concerns.

I am currently interested in determining whether ash from the early years of the power plant's incineration process might have been contaminated with dioxins or other toxins, and how that ash was disposed of. I did not see any mention of thls aspect when I was reviewing the file at your office earlier thls month. I would appreciate any information you can provide.

Sincerely,

Kristy Sarconi

Box 284
Comptche, CA 95427

WATER QUALITY
CONTROL BOARD
REGION I

MAY 21 '86

☐ BK ____ ☐ AC ____
☐ CJ ____ ☐ SC
☐ FR FR ☐ ____
☐ RT ____ ☐ ____
☐ JH ____ ☐ ____
☐ BB ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

No letter attached

May 23, 1986

Douglas L. Strauch
3331 Barde
Valley Springs, CA 95252

Dear Mr. Strauch:

Enclosed are the copies you requested from the Georgia-Pacific Corporation. Fort Bragg Soil Amendment file. Please remit a check in the amount of $6.18, made to payable to the State Water Resources Control Board.

Alto enclosed are the Report of Waste Discharge forms that you requested. If we can be of further assistance, please contact us.

Sincerely,

Patricia C. Gorup
Stenographer

Enclosures

UKIAH OFFICE
890 NORTH BUSH STREET
UKIAH, CA 95482
(707) 468-4461

WATER QUALITY
CONTROL BOARD
REGION 1

JUN 4 '86

FORT BRAGG OFFICE
790-A SOUTH FRANKLIN STREET
FORT BRAGG, CA 95437
(707) 964-4713

COUNTY OF MENDOCINO
DEPARTMENT OF PUBLIC HEALTH
COURTHOUSE
UKIAH, CALIFORNIA 95482

☐ BK ___ ☐ RC ___
☐ EJ ___ ☐ ___
☐ FR ___ ☐ ___
☐ YR ___ ☐ ___
☐ JM ___ ☐ ___
☐ BB ___ ☐ ___
☐ JG ___ ☐ REPLY
☐ ALL STAFF ☒ FILE

Division oi En[illegible] Health
Courthouse, Ukiah, Ca. 95482
May 29, 1986

Ms. Kristy Sarconi
P.O. Box 284
Comptche, California 95427

Dear Ms. Sarconi:

In response to your letter of May 17, I ?, tne following information is provided.

1. Mr. Robert F, Swan, 'Deputy Director, Mendocino County Air Pollution Control District, will answer Nos.. 1 and 2 of your letter.

2. in 1984, tne Mendocino County Health Department began receiving complaints about the disposal of woodwaste asn on both public and private properties. Some of tne asn was also being used by Albert's Best, as a bulking agent, and as a soil amendment product. In tne case of the land disposal of asn, it was ostensibly being used as a "soil amendment". Several private landowners requested the ash to adjust tne pH of acid soil, and for the other beneficial materials, such as potasn, found in woodwaste ash. However, t-ne asn was simply piled on most properties, and ultimately caused quite a nuisance wnen the wind blew. Since tne North Coast Regional Yater Quality Control Board controls the disposition of waste from industrial operations, it was decided tnat tney (NCRWQCB) would pursue correction of tne problem tnrough a waste disonarge order. In early 1986, Waste Discnarge Order No. 86-3 was issued by the Water Quality Control Board, wnich restricted tne placement of asn to approved soil amendment project sites. Georgia Pacific currently operates one site in Little Valley, north of Fort Bragg. I also am aware of a plan by tne Mendocino Unified Scnool District to possibly use tne asn on a new track at the nign scnool.

- Although I am not in a position to definitively state tnat Georgia Pacific nas never incinerated treated wood products, tne Water Quality Control Eoard considers sucn a possibility unlikely for tne following reasons:

  A. Georgia Pacific does not use wood treatment products at tne mill.

B. Testing done by California Analytical Laboratories, Incorporated does not show the presence of several materials whicn would be anticipated in the woodwaste ash if penta treated wood were to be incinerated, The .24 parts per billion of octacnlorodibenzo-p-dioxin is less tnan background levels normally found in soil.

I agree with the Water Quality Control Board's position that, at tnis time, tnere is no evidence tnat tne woodwaste asn presents a nazard to the public from dibenzofurans, or from dioxins.

Sincerely,

Gerald F. Davis

Gerald F. Davis
Director of Environmental Health

GFD:da

cc: Craig McMillan, M.D., Healtn Officer
Susan Warner, Nortn Coast Regional Water Quality Control Board
Fort Bragg Healtn Department

File: 22.33

June 4, 1986

Kristy Sarconi
Box 284
Comptche, CA 95427

Dear Ms. Sarconf:

Your letter of Hay 17. 1986, mentions as an enclosure a letter from you to Gerald Davis. The copy was not included with your letter. However, Your letter requests our assessment of the potential for chlorcdioxin formation, elther in the past or currently. at the Georgla-Pacific power plant.

Your request appears to refer back to the soil sample that was reportedly obtained from a Fort Bragg school yard, and analyzed by Cal Analytical Laboratories on September 30, 1984. The laboratory reported finding 0.24 ng/g or parts per billion of octachlorodibenzodioxin in a composited soil sample collected in plastic bags. It is unclear whether this composited sample was totally ash, partially ash. or contained other potential sources of the octachlorodibenzodioxln. As you problably know, the result found could be within the error limits of sampling and analytical methodology and was not considered evidence of environmental contamination by Mr. Dwight Hoenig of the State Department of Health Services.

Polychlorinated dibenzodioxins (PCDD) and polychlorinated dibenzonfurans (PCDF) can be formed in the Incineration of materials containing chlorine. The key to formation of PCDD and PCDF is in the feedstock (the material to be burned) for the incinerator. if the feedstock is municipal refuse which may contain virtually anything in small amounts. Including some chlorinated compounds, then the opportunity for PCDD and PCDF formation does exist. I have enclosed two articles on this process for your information.

It is less probable that wood-fired power plants would generate PCDDs and PCDFs since it is unlikely that chlorinated chemicals would be present in the feedstock. Georgia-Pacific currently reports no usage of pentachlorophenol to treat wood products at the Fort Bragg sawmill. I do not have any knowledge of pentachlorophenol use occurring at the Fort Bragg mi11 during my tenure as inspector for the site. The mi11 principally has always been a redwood sawmill, and the need for pentachlorophenol treatment generally does not exist with redwood products (pentachlorophenol is used to prevent "blue-stain", a fungal problem with whitewoods such as pine and fir). However, I have been assigned as inspector of this mill only since August of 1983. Because of this 1 reviewed the files for the time period before my assignment and found a February, 1983 letter indicating an anonymous report of the spraying of "permatox 180" on lumber at the mil1. Permatox 180 contains tetrachlorophenol and other chlorinated phenolics. Upon our request, Georgia-Pacific reported in April. 1983 that there was no present use or

storage of pentachlorophenol products at the mill site. Samples taken by our agency in this time period show the presence of both pentachlorophenol and tetrachlorophenol in the Georgia-Pacific wastewater discharge at low part per billion levels; however, no samples of the Inflow water above the mill were obtained which would aid in evaluating the data. Prlor sampling by Georgia-Pacific in 1981 had not shown any detectable pentachlorophenol (nor any detectable tetrachlorodibenzodioxin) in the wastewater discharge. Sampling in early 1984 by Georgia-Pacific similarly did not show any pentachlorophenol or tetrachlorodibenzodioxin present in their wastewater discharge.

In late 1982 or early 1983, Georgia-Pacific added a new boiler to their power production facilities. This new boiler greatly increased the ash production at the plant. Ash generated from the site prior to thls time was governed by the NPDES permit on the facility, which required that disposal of solid wastes be at an appropriate waste disposal site. The previous Inspector for the site recalls that ash was re-injected Into the boilers during this early period. and also was used with alum as a flocculent for their waste treatment ponds. In any event, since the ash subsequently has been determined to be a non-hazardous waste, any inappropriate soil amendment use prior to 1983 should no longer present any water quality threats, given the length of time that has passed. As you know, the uncontrolled use of the ash as a "soil amendment" was investigated by our agency in 1984 and 1985, and enforcement actions were taken. Current ash disposal is in accordance with Regional Board orders.

Please let me know if there is further information I can provide.

Sincerely.

Susan A. Warner
Associate Engineering Geologist

Enclosures

cc: Gerald Davis, Mendocino County Health Department

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

Interoffice Communication

TO: (1) Frank Reichmuth DATE: June 10, 1986
(2) file - Georgia-Pacific, Soil Arnendnent

FROM: Susan Warner

SUBJECT: Evaluation of alternative sites for soil amendment use of ash

I met with Sue O'leary, Dow Jacobzoon. Dave Larkln (all of G-P), Roland Meyer (UC-Davis extension soil specialist), Denfs Osborne (Ukiah Forestry Extension Agent), and Rod Shippey (Agricultural Extension Agent out of Ukiah) to discuss the soil amendment value of ash on the coastal terrace soils, and to evaluate possible alternative sites for ash use as a soil amendment.

The first site visited was the Maguire Ranch area, where ash had been desposited last year causing numerous complaints. A good crop of clover and grasses had been established, without fertilization. Four or five kinds of nitrogen-fixing clover had been used in their seed mix. Such a mixture appears to adequately compensate for the wide CN ratio of the ash. allowing for crop establishment. The ash had been well disked in. No simiiiar luxuriant crop establishment was seen at the Little Valley site, including the area where ash had been incorporated at the same time as at Maguire. This may be the result of no seeding at the time of incorporation, and insufficent volunteer establishment. Georgia-Paciflc indicated that the test plots at the site had delayed seeding until the cold weather was present, which resulted in inadequate germination. The test plots at the site, including differing fertilizer rates, showed no differences over the controls. None looked good.

The differences observed at the Little Valley site versus the Maguire Ranch site may be accounted for by lateness of seeding, and the grazing of the area at Little Valley. It may also be related to the varying natural productivities of the site.

Another small ash treatment area was located north of Little River. just off Highway 1 on the Spring ranch. Luxuriant clover and grass growth was evident in the treated area, with the heavier ash treatments showing less growth promotion than the lighter. Supposedly this ash was not incorporated but merely placed on the surface of the soil. If so, then plant growth at this site was far superior to previous topical placements seen off Pearl Drive. This probably relates to the underlying soils themselves. It is difficult to speculate on the utility of the ash as a soil amendment on one site versus another site without knowing the properties of the soils, the rates of application, and planting practices which resulted in particular yield increases. I believe the University is proposing additional plot tests, and their work may answer some of these questions.

Georgia-Pacific showed me an additional site in Little Valley (near the current active ash site) where the company wishes to use ash for soil amendment purposes. The new site is immediately off their new access road, and allows for easy storage during wet weather. A stream bisects the proposed storage area, and the ground generally slopes toward the stream. I was concerned over the discharge potential posed by the drainageway, and Georgia-Pacific indicated that they would keep back from the stream. Further information on their plans is needed to fully evaluate the discharge risks. I indicated to Georgla-Pacific that this area may not be covered by their existing waste discharge requirements, but that I would consult with our attorney. In any event. I instructed Georgla-Pacific to submit plans to us, including a map showing the area and descriptions of their proposed activities for the site.

We discussed activities at the current Little Valley site as well. This site is being cultivated and the ash will be incorporated from the upper storage areas into the cultivated soil. A cover crop should be established this sumner for erosion control. This sumner crop would be allowed to die-back by late summer or early fall. The fall crop can be planted under minimum or no-tillage practices, and presumably result in the establishment of a good clover-grass crop by spring 1987. This site should be carefully evaluated at the end of summer. If the area is stabilized, then I would recommend recision of the cleanup and abatement order, and modification of the monitoring program.

cc Roland Heyer
Denis Osbourne
Rod Shippey
Sue O'Leary

Green Valley Nursery

G. PODESTA & SONS

GROWERS of POTTED PLANTS and CUT FLOWERS

PLAZA 5-4323 • 640 LISBON AVE.

COLMA 25, CALIFORNIA

June 17, 1986

Arbella Nietto
964-3783

Dear Water Quality Control Board,

I need your approval for a project I am contemplating. I am a grower of cut flowers and wish to improve the fertility of my sail. I want to spread a layer of ashes over my soil, and then disk it under. The ashes will not be left to blow to someone else's property, or wash off in the next rain. The Parcel Numbers involved are # 019/570/04 and # 017/262/220 in Fort Bragg. Georgia-Pacific will give me the ashes subject to your approval. I will have them check with you. If you need to get a hold of me for further information, my mailing address is below.

Sincerely,

John Podesta

John Podesta
640 Lisbon St.
Daly City, CA '94014
(415) 755-4323

WATER QUALITY
CONTROL BOARD
REGION 1

JUN 26 '86

- ☐ BK ☐ RC
- ☐ CJ ☐ SW
- ☑ FR ☐
- ☐ RT ☐
- ☐ JH ☐
- ☐ BB ☐
- ☐ JG ☑ REPLY
- ☐ ALL STAFF ☐ FILE

7/21/86 - called, left message for Podesta.

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

June 19, 1986

WATER QUALITY
CONTROL BOARD
REGION 1

JUN 23 '86

☐ BK ☐ RC
☐ GJ ☐ SW
☑ FR FR ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☐ FILE

Mr. Ben Kor
California Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the May report for the Georgia-Pacific Soil Amending Project as per revised Monitoring and Reporting Program 86-3.

Sincerely,

Sue O'Leary

Sue O'Leary, Director
Environmental Health and Safety
WESTERN WOOD PRODUCTS MFG
California Wood Products

SO:mm
Encl.

Ash has been applied and incorporated on an additional five (5) acres during the month of June. All 15 acres have been grass seeded with annual rye grass. These areas are being watered to establish the grass for erosion control. It is our intent to rent a seed drill and plant a clover/grass mix in September for perennial cover.

Stormwater Runoff Nonitoring

No monitoring was conducted as there was no precipitation.

JUNE REPORT

GEORGIA – PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by week - Cubic Yards of Ash - deposited at upper field of Area A.

June 02-07	620
08-14	600
15-21	600
22-30	700

2520

Number of Treated Acres (Area A) ~ 15- Acres
Number of Treated Acres* (Area W) ≈ 5 Acres

*All ash that was stockpiled has been amended.

Daily Precipitation Measurements		PFT (Inches)
June	1	0
	2	0
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0
	11	0
	12	0
	13	0
	14	0
	15	0
	16	0
	17	0
	18	0
	19	0
	20	0
	21	0
	22	0
	23	0
	24	0
	25	0
	26	0
	27	0
	28	0
	29	0
	30	0

INCIDENT SUMMARY REPORT

July 1, 1985 through June 30, 1986

	Calls	Man Hours
Structure Fire		
City	16	275:27
Rural District	12	512:08
Out of District	0	0:00
Total ----------	28	787:35
Chimney Fire		
City	33	336:54
Rural District	21	248:39
Out of District	0	0:00
Total ----------	54	585:33
Brush and Forest Fire		
City	9	99:41
Rural District	18	154:00
Out of District	5	318:54
Total ----------	32	572:35
Smoke Investigation		
City	2	55:51
Rural District	0	0:00
Out of District	0	0:00
Total ----------	2	55:51
Vehicle Fire		
City	9	62:11
Rural District	7	106:31
Out of District	0	0:00
Total ----------	16	168:42
Vehicle Accident		
City	12	150:34
Rural District	19	284:56
Out of District	5	[illegible]
Total ----------	36	

	Calls	Man Hours
Rescue		
City	11	58:17
Rural District	8	125:16
Out of District	5	264:20
Total ----------	24	447:53
Resuscitation		
City	57	356:06
Rural District	40	343:41
Out of District	0	0:00
Total ----------	97	699:47
Fire Menace Standby		
City	1	2:45
Rural District	0	0:00
Out of District	0	0:00
Total ----------	1	2:45
False Alarm		
City	10	32:46
Rural District	5	19:15
Out of District	0	0:00
Total ----------	15	52:01
Power Lines, Dumpsters, Misc.		
City	26	216:32
Rural District	10	215:08
Out of District	0	0:00
Total ----------	36	431:40
Totals		
City	186	1647:04
Rural District	140	2009:34
Out of District	15	712:20
Grand Totals --	341	4368:58

ATT #12

Cooperative Extension

UNIVERSITY OF CALIFORNIA MENDOCINO COUNTY

COUNTY AGRICULTURAL CENTER 707-463-4495
579 LOW GAP ROAO
UKIAH. CA 95482

July 8, 1986

QUARTERLY NARRATIVE REPORT - Rocerick A. Shippey
Livestock Advisor

MORE ON FLY ASH--LOTS OF CLOVER HAY--YOU BET

The Fort Bragg solid waste proolem called fly ash and "the neighbors* complaints" are on the way to becoming a real asset. The McGuire Ranch had a mountain of fly ash that was disked into the shallow, low pH coastal bench soil. The California Water Quality Control folks thought it was an environmental hazard. A local county water quality officer threatened an injunction, townsfolk were mixed in their feelinps about the black clouds of dust drifting in from the miles of yet unincorporated ash, and the test area was snowing some exciting promise of increased clover and orchard grass mroduction.

The plot has been harvested with some astonishing tonnage. Normal hay mroduction is less than one ton per acre. The fly ash supplemented 20 acres produced 3 1/2 tons per acre. I have the hay samples in the lab now for analysis of potash, phosphorous, sulfur and protein.

Rollie Meyer and I have three plots planned for this summer and fall with rates ranging fron 2 tons per acre to 1056 tons per acre.

The product does the job, now all we need to know is how much do we need to use to pet 3 1/2 tons of clover hay on other coastal soils.

TWO CUPS OF COFFEE AND WE HAVE FISH BIOLOGISTS ON OUR TEAM

California Deoartment of Fish and Game Fish Biologists, Phil Baker and Wendell Jones, became RERLLY INTERESTED in our liver-fluke project when I contacted them about treating Potter Valley's irrigation ditches with bluestone to control the liver-fluke snails.

The clean-up and abatement order imposed two years ago by California Water Quality Control Board has just been lifted because of the test olot results showing [redacted] due to incorporatina hign levels of wood fired boiler ash.

Georgia Pacific relies on their co-generation facility to power their Fort Bragg sawmill plus sell surplus Dower to PG&E.

TOO MUCH WATER FOR IRRIGATION--A PROBLEX?

Lake County's Sanitation District collects sewage from the Clear Lake edge villages. The facility processes the sewage which produces about an acre foot of effluent water daily. Their disposal system is a 520 acre sprinkler field planted to clovers and perennial grasses.

The District leases the grazing to livestock to keep the plants viable and growing to use as much water as possible. The problems they have are runoff during irrigation. blackberry control. grazing methods. and soil fertility levels. for openers.

The runoff problem was easy to solve because the system was applying more water than the soils could accept. The blackberrv flap was quickly solved by contractinq with a oest control operator to sprav then with Crenite. Rollie Meyer came up for consultation on soil test results.

The district managers needed us but it all started with a Xendocino cattleman leasing the grazing whicn opened the door to lots of other requests and luckily. their solutions.

OUR KID WON THE SHEARING COMPETITION

Tommy Thompson. a beginner student in the 1987 shearing school. came all the way from Texas. He had certainlv handled a shearing handpiece before. but wanted to learn more about proper shearing methods. He is 20 years old. a business major at a Texas community college. and was clearly the candidate to be sent to the National Shearing School competition at Roseburg, Oregon. Our Xendocino Woolgrowers had a two hundrea dollar award for the top shearer if this person would compete at Roseburg. Tommv went to Roseburg and competed against candidates from all the 16 schools held this year in the United States. Tomnv won by one point! He now can go to New Zealand as the guest of tho New Zealand Wool Board who will pick up his expenses for a shearina season. He will be on a top shearinq pang and receive the same pay a6 the New Zealanders.

cc: Bruce Bearden. Verne Marble. Rollie Meyer. Richard Teague

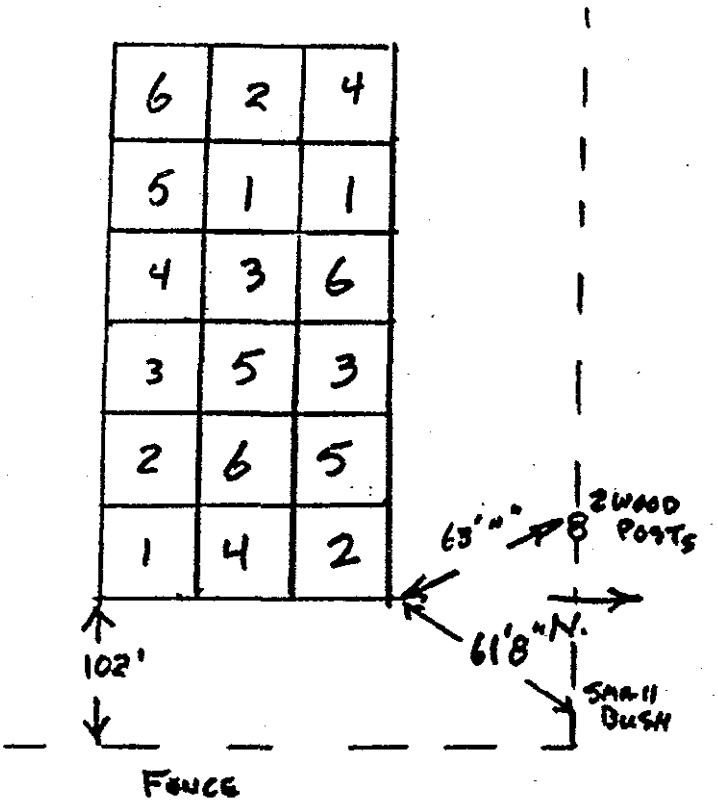
Georgia Pacific Fly Ash Test
July 9, 1986
Testing rates of application
0 - 64 tons - 128 tons, 256 tons
512 tons - 1024 tons/acre

Calculated: Pre treatment

#1 = Control
#2 = 64 tons/acre
#3 = 128 tons/acre
#4 = 256 tons/acre
#5 = 512 tons/acre
#6 = 1024 tons/acre

Adjusted - 9/10/86

#1 = Control
#2 = 48 tons/acre
#3 = 96 tons/acre
#4 = 192 tons/acre
#5 = 384 tons/acre
#6 = 768 tons/acre



Georgia-Pacific Corporation 90 West Redwood Avenue
Fort Bragg, California 91437
Telephone (707) 964-5611

WATER QUALITY
CONTROL BOARD
REGION 1

JUL 15 '86

☐ BK ☐ RC
☐ CJ ☐ SW
☑ FR ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☐ FILE

July 14, 1986

Mr. Ben Kor
California Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the June report for the Georgia-Pacific Soil Amending Project as per Revised Monitoring and Reporting Program 86-3.

Sincerely,

Susan J. O'Leary/mm

Susan J. O'Leary, Director
Environmental Health and Safety
WESTERN WOOD PRODUCTS MFG
California Wood Products

SJO:mm
Encl.

Ash has been applied and incorporated on an additional two (2) acres during the month of July. Fifteen acres have been grass seeded with annual rye grass. These areas are being watered to establish the grass for erosion control. Pictures were sent to you last month. Final plans are being made to have Bud Thompson plant a clover/grass mix in September for perennial cover.

Stormwater Runoff Monitoring

No monitoring was conducted as there was no precipitation.

JULY REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT WDNITOHING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by week - Cubic Yards-of Ash - deposited at upper field of Area A.

July 01-05	360
07-11	500
14-18	440
21-25	320
28-31	400
	2020

Number of Treated Acres (Area A) ≈ 17 Acres

Number of Treated Acres* (Area W) ≈ 5 Acres

*All ash that was stockpiled has been amended.

WATER QUALITY CONTROL BOARD REGION I

AUG 26 '86

☐ BK ____ ☐ RC ____

☐ CJ ____ ☐ ____

☐ FR ____ ☐ ____

☐ RT ____ ☐ ____

☐ JH ____ ☐ ____

☐ BB ____ ☐ ____

☐ JG ____ ☐ REPLY

☐ ALL STAFF ☐ FILE

Daily Precipitation Measurements		PPT (Inches)
July	1	0
	2	0
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0
	11	0
	12	0
	13	0
	14	0
	15	0
	16	0
	17	0
	18	0
	19	0
	20	0
	21	0
	22	0
	23	0
	24	0
	25	0
	26	0
	27	0
	28	0
	29	0
	30	0
	31	0

F

G-P, Ft Bragg Sawmill

July 24, 1986

John Podesta
640 Lisbon Street
Daly City, CA 94014

Dear Mr. Podesta:

I received your note of June 17, 1986, concerning use of ash from the Georgia-Pacific sawmill on your property near Turner Road. This agency will need to have information on the soil amendment use of Georgia-Pacific ash prior to approving such use. This information includes:

a. Number of acres to be treated;
b. Amount of ash to be used (loading rate);
c. Soil characteristics (pH, etc); and
d. Management practices which will be used to avoid nuisance and water quality impacts.

Airborne ash in the area of your proposed use has generated numerous complaints in the past. Ash cannot be allowed to dry and become dusty in this area, and will need prompt plowing/incorporation You will need to submit your full plans on use of this ash to our office prior to our granting approval. I will call your area manager soon to arrange an inspection of the proposed site.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

cc: Sue O'Leary
Georgia-Pacific Corporation

Ed Bridges
Mendocino County Health Department

Georgia-Pacific Corporation
Yo West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

July 25, 1986

Ms. Susan Warner
California Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Susan:

According to Revised Monitoring and Reporting Program 86-3, Georgia-Pacific is to prepare an Annual Report each July for the Soil Amending Project. Enclosed is this year's report.

If you have any questions, please call me.

Sincerely,

Sue O'Leary

Susan J. O'Leary, Director
Environmental Health and Safety
WESTERN WOOD PRODUCTS MFG
California Wood Products

SJO:mm
Encl.

WATER QUALITY
CONTROL BOARD
REGION 1

JUL 25 '86

☐ BK ☐ RC
☐ CJ ☑ SAW
☒ FR ☐
☐ BT ☐
☐ JH ☐
☐ BB ☐
☐ IG ☐

STAFF

ANNUAL REPDRT - GEORGIA-PACIFIC SOIL AMENDING PROJECT

Georgia-Pacific Corporation began transporting wood flyash from its plant in Fort Bragg to Little Valley in October, 1985. It was the Company's original intent to amend this material into the soil on a daily basis. It became apparent once it had rained that winter soil conditions made ash incorporation impossible. The Company stockpiled the ash until the beginning of May when it began incorporating the material.

As this report is the first, much of the information is from original field monitoring and will be provided generally in a table format. Next year's report will allow for a more in-depth analysis of this project as more information will be available (soils, water) and the forage crops will be long established.

This report includes the soil analyses completed prior to amending, the storm-water analyses, the amount of ash applied, the number of acres receiving ash, and the evidence of increased pasture-land yield.

Soil Analyses

- See enclosed analysis from Dellavalle Laboratories
- See enclosed map for location points of samples

Storm-Water Analyses

- See enclosed map for location points of samples
- See enclosed charts of storm-water analyses
- Storm-water monitoring was conducted during the months of February (12.06 inches of precipitation) and March (7.10 inches of precipitation)
- Results show slight increases in pH at several locations during storm periods which has been attributed to ash entering the ephemeral draws. This is a result of aah not being fully incorporated into the soil prior to the rainy season and running off the surface into the stream channel.
- Stream cleanup of these additions were made and pH levels returned to early winter levels.
- Suspended solid levels generally increased as precipitation and surface runoff increased. In addition, it is felt that part of the increase in suspended solids measured on 2-14-86 and 2-20-86 at points 3-7, could be attributed to stream cleanup activities which removed ash and vegetation from the ephemeral draw.

Amount of A Applied - 28,580 cubic yards

Number of Acres Receiving Ash

- Number of treated acres, Area A - 15
- Number of treated acres, Area W - 5
- Number of acres of ash on surface not amended 5

Treated acres have been disk-plowed to a depth of 36 inches.

Evidence of Increased Pastureland Yield

All of the incorporated acres were grass seeded in early June and are being watered. The grass is emerging and photos are being taken to show the progress of plant growth. These photos will be sent to you by August 15, 1986.

DELLAVALLE
Laboratory, Inc.
Chemists and Consultants
1910 W. McKinley, Suite 110 • Fresno, CA 93728 • (209) 233-6129
1965 E. Tulare Ave. • Tulare, CA 93274 • (209) 688-0608

REPORT OF ANALYSIS

Georgia Pacific #2177
90 W. Redwood Ave
Fort Bragg, CA 95437

Lab No. 58381
Sampled
Submitted 10/31/85
Submitted By Sue O'Leary
Reported 11/14/85
Office Fresno

Identification Soil

Ranch

No.		% SP	pH	% Ca	% Mg	% Na	Required Lime**	% NO3-N	% PO4-P	% K	----Meq/100g---- CEC	Base Sat.
1.	Upperfield East	38	4.0	0.02	W.O1	W.O1	7500	*0.1	*0.1	0.01	13	7.6
2.	Lowerfield South	62	4.1	0.03	*0.01	*0.01	9000	*0.1	*0. 1	0.02	20	W.I
3.	Area W West	49	4.3	0.02	*0.01	W.O1	9500	*0.1	*0.1	0.02	18	6.4

*Less Than

**lbs of 100% CaCO3 equivalence/acre 6"

DELLAVALLE LABORATORY, INC.

Mike A. Princevalle
Soil Scientist

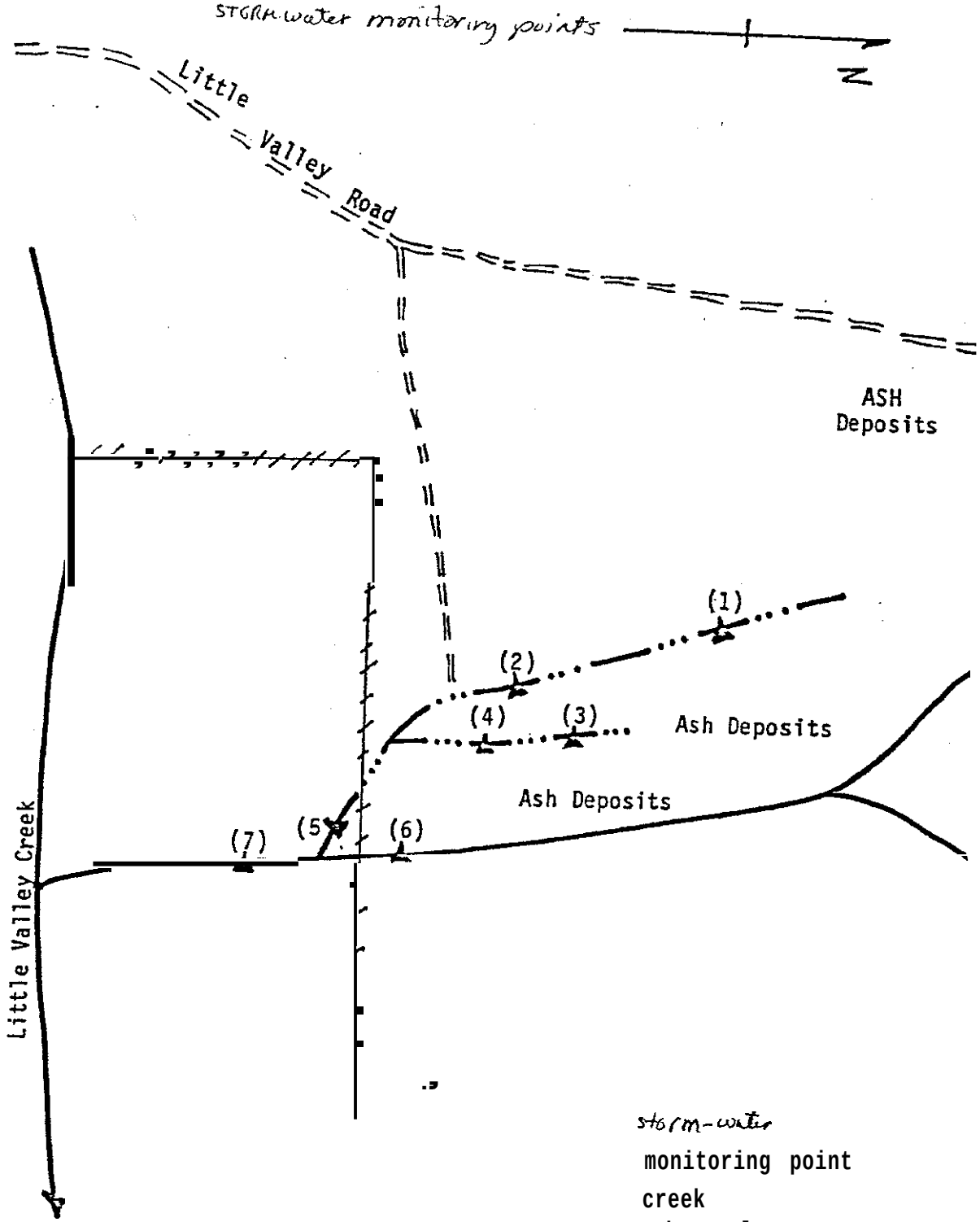
MAP:ae

Enclosures

RECEIVED NOV 19 1985

GEORGIA - PACIFIC CORPORATION
FORT BRAGG - SOIL AMENDMENT PROJECT

STORM water monitoring points



storm-water monitoring point
creek
ephemeral stream
fence
road (dirt/gravel)

NOT TO SCALE

original map provided by water quality

Storm-Water Runoff Monitoring

It rained from 2-12-86 to 2-20-86. Clean-out of the ephemeral draw earlier in the month as well as additional straw placement has held up well. Flows peaked on 2-17-86 and several straw filters were washed downstream. Access to the area was limited because of the flooding of Little Valley Creek above the road and surface flow on the amended part of Area A made walking on the surface difficult. The cleanup measures prevented the large accumulations; in the now checked dammed ephemeral draw but surface erosion increased in the incorporated ash area causing ash to be carried via overload flow to the creek at Point 5 as well as some material to enter the lower end of the ephemeral draw. Additional straw bale diversions have been placed and appear to be functioning well in the filtering of surface water across the site.

pH Measurements — Location

Date	1	2	3	4	5	6	7
2-13-86	6.4	6.3	6.65	7.0	6.7	6.7	6.7
2-14-86	6.35	6.35	6.6	7.0	6.9	6.7	6.7
2-18-86*	6.3	6.3	6.8	7.1	7.0	7.0	7.0
2-19-86	6.3	6.3	7.0	7.2	7.0	7.0	7.0
2-20-86	6.3	6.3	6.9	7.1	6.9	6.9	6.9
2-24-86	6.1	6.1	7.0	7.0	6.6	6.7	6.7

*No measurements were taken 2-17-86, no access to sampling points.

Suspended Solids(mg/l) — Location

Date	1	2	3	4	5	6	7
2-14-86	20.6	21.2	37.0	52.1	46.7	28.9	36.1
2-20-86	31.6	33.3	46.1	62.0		67.2	59.6
2-24-86	17.3	20.5	26.	32.1	28.1	17.6	22.0

Stormwater Runoff Monitoring

A large storm occurred over the period of March 6-13, 1986. Sampling was conducted on March 6, 7 and 10 and reflects the peak flow of the storm. No new additions of ash to the stream system were observed - hay bales appeared to be containing ash and allowing the water to flow past.

pH Measurements — Location

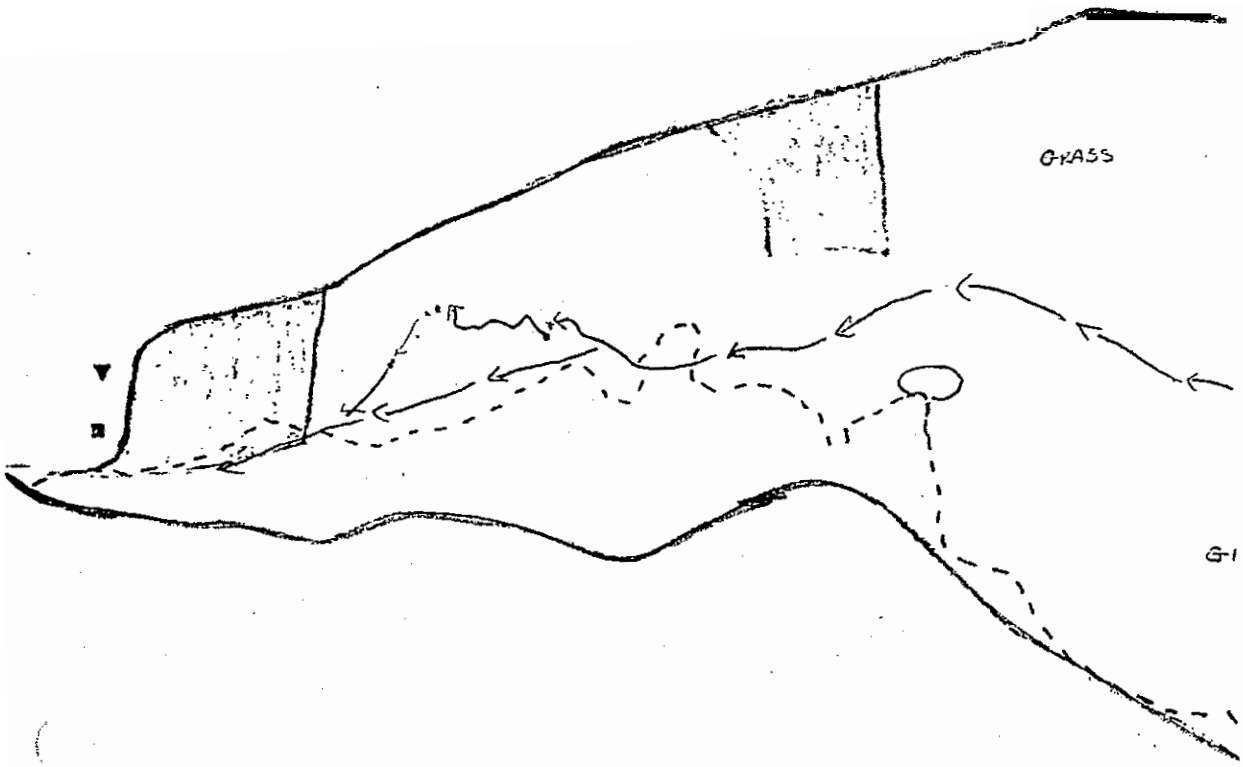
Date	1	2	3	4	5	6	7
03/06/86	6.1	6.2	7.3	7.3	6.7	7.0	7.2
03/07/86	6.45	6.35	6.65	7.05	6.7	6.7	6.7
03/10/86	6.2	6.4	6.65	6.65	6.8	6.55	6.8

Suspended Solids	Location						
Date	1	2	3	4	5	6	7
03/lo/%	15.1	16.3	37.6	42.1	27.5	20.2	23.3

COD	Location						
Date	1	2	3	4	5	6	7
03/07/86	30	43	39	50	41	51	37

SOIL SAMPLING MAP

GEORGIA - PACIFIC'S - LITTLE VALLEY SOIL AMENDING PROJECT
LOCATION



90 West Redwood Avenue
Fan Bragg, California 95437

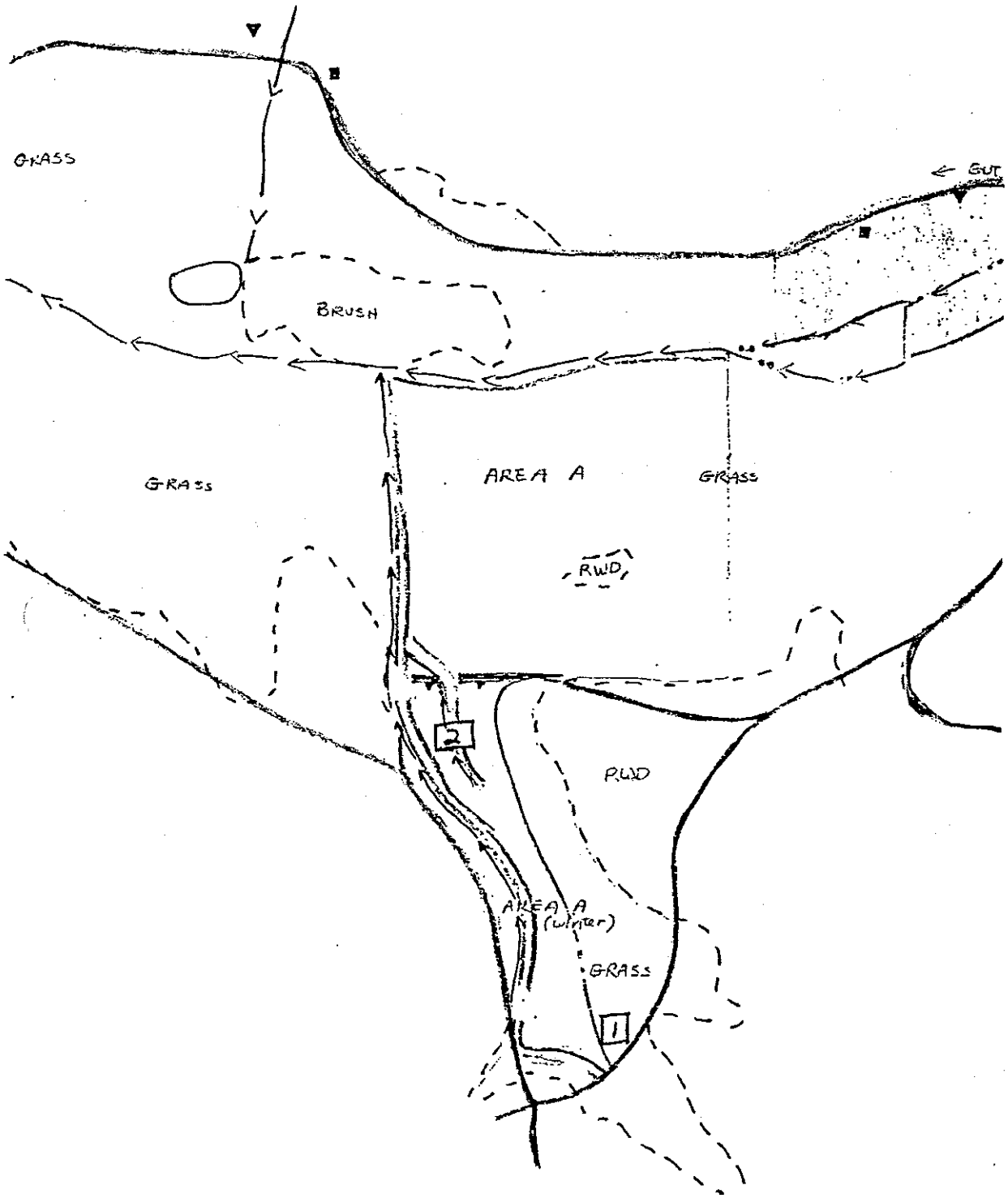
LEGEND MAP 2

ROADS	BUFFER ZONE
PERENNIAL STREAMS	AREA A
EPHEMERAL STREAM	VEGETATION TYPE
PONDS	NON G-P PROPERTY
HOUSES	1 - upperfield east soil sampling point
OTHER STRUCTURES	2 - lowerfield south soil sampling point
	3 - Area W soil sampling point

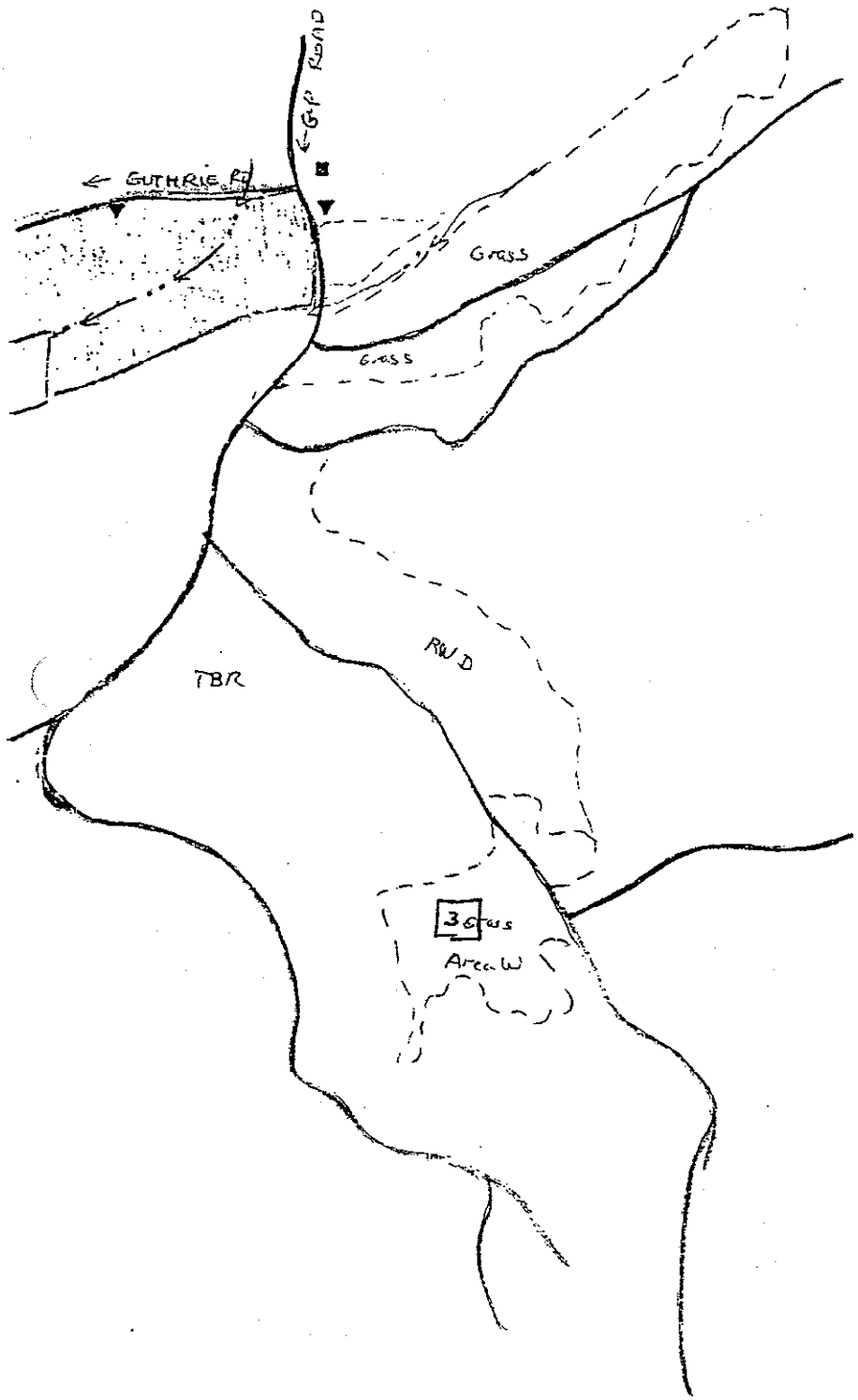
ing PROJECT

LOCATION OF SOIL SAMPLING POINTS

SCALE 1" = 600'



.G 1" = 600'



8

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

INSPECTION COVER SHEET

TO: (Senior Engineer) FK

Dennis Salisbury (for WDS computer input) DLS

File

FROM: (Inspector) SMW

WDS FACILITY ID NO.: 1BOS030RMEN

FACILITY NAME: Georgia-Pacific, Soil Amendment

WAS THIS AN EPA INSPECTION? (Y/N): N (append form 3560-3 if Yes)

WAS A BIOASSAY SAMPLE TAKEN?: STATIC or FLOW-THROUGH None

DATE OF INSPECTION: 5/16/86 TIME: 10:00 INSPECTOR'S INITIALS: SMW

FACILITY EVALUATION: IN COMPLIANCE?
VIOLATION? (attach WDS violations input form)

SHORT INSPECTION COMMENT:
Ash still threatens to discharge

TYPE OF INSPECTION:
1 - 'A' type compliance inspection
2 - 'B' type compliance inspection
3 - follow-up for non-compliance
4 - follow-up for enforcement
5 - complaint investigation
6 - pre-requirement inspection
7 - miscellaneous inspection

INSPECTING AGENCY: STATE FEDERAL (EPA) JOINT STATE/FEDERAL

SIGNATURE: S. A. Warner

Attach inspection narrative, sampling results, map of facility, lumbermill checklist, and/or underground tank evaluation as appropriate.

CA[redacted]ORNIA REGIONAL WATER QUALITY [redacted]ROL BOARD
NORTH COAST REGION

G-P, soil Amendment

WDS VIOLATIONS INPUT FORM

RESPONSIBLE STAFFER: SAW WDS FACILITY ID NO.: 1B85030RMEN

TYPE OF VIOLATION:
- (A) - violation of enforcement order'
- B - violation of compliance schedule
- C - violation of effluent limitations resulting in potential or actual adverse effects or human health hazard
- D - failure to provide monitoring or other technical reports
- E - vialations not included in 'C' (use TRC)
- F - violation of Basin Plan prohibition
- G - unauthorized discharge not covered by requirements, permit, or Basin Plan

DATE REPORT REC'D: _____ DATE OF VIOLATION: 03/11/86 threatened DLS

DATE VIOLATION DETERMINED: 03/11/86 VIOLATION DESCRIPTION: discharge of Ash

****

TYPE OF VIOLATION (A thru G from above table): A

DATE REPORT REC'D: _____ DATE OF VIOLATION: 05/16/86 DLS

DATE VIOLATION DETERMINED: 05/16/86 VIOLATION DESCRIPTION: threat. discharge of ash

****

TYPE OF VIOLATION (A thru G from above table): _____

DATE REPORT REC'D: _____ DATE OF VIOLATION: _____

DATE VIOLATION DETERMINED: _____ VIOLATION DESCRIPTION: _____

****

TYPE OF VIOLATION (A thru G from above table): _____

DATE REPORT REC'D: _____ DATE OF VIOLATION: _____

DATE VIOGTION DETERMINED: _____ VIOLATION DESCRIPTION: _____

****

TYPE OF VIOLATION (A thru G from above table): _____

DATE REPORT REC'D: _____ DATE OF VIOLATION: _____

DATE VIOLATIDN DETERMINED: _____ VIOLATION DESCRIPTION: _____

****

Georgia-Pacific Corporation *90 West Redwood Avenue*
Fort *Bragg, California 95437*
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION I

August 7, 1986

AUG 1 1 '86

☐ BK ___ ☐ RC ___
☐ CJ ___ ☐ SW
☐ FR FR ☐ ___
☐ RT ___ ☐ ___
☐ JH ___ ☐ ___
☐ BB ___ ☐ ___
☐ JG ___ ☐ REPLY

Mr. Ben Kor
California Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Mr. Kor:

I have enclosed *the* photos that I promised for our annual report on Little Valley Soil Amending Project. These photos show the several of the fly-ash amended areas.

Photos Numbered 1 - These photos show the lower field *area* that was amended with fly-ash last fall and the test plot that was installed in January. You'll note *the* grass *crop* which, except for the test plot was all volunteer, averages two to two and a half feet in height. This grass is approximately two feet taller than the *surrounding* non-fly-ash amended grass.

Photos Numbered 2 - These photos are of *the* lower field area that has been grass *seeded* with annual rye grass as per our discussion with Sue Warner in May. As you *can see,* this area is being watered, the grass is germinating and is growing. This area will be replanted this fall (by September 30, 1986) with a clover/grass *mix* that will be cropped next June or July for hay.

We anticipate to have better pictures and to have figures for next year's report as we missed much of last year's planting cycle. Results from the McGuire plot, that we helped to install last fall, indicate an *increase* in yield from 1,500 lbs./acre to 7,000 lbs./acre. As the soil conditions at the McGuire property are quite similar to ours, we hope to get similar results by next June.

If you need any further information, let me know.

Sincerely,

Sue O'Leary

Sue O'Leary, Director
Environmental Health and Safety
WESTERN WOOD PRODUCTS MFG
California Wood Products

Photos filed w/ slides
SOW
8/15/86

SO:mm
Encl.

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

August 22, 1986

AUG 26 '86

☐ BK ____ ☐ RC ____
☐ CJ ____ ☐ ____
☑ FR ____ ☐ ____
☐ RT ____ ☐ ____
☐ JH ____ ☐ ____
☐ BB ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

Mr. Benjamin D. Kor
North Coast Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the July report for the Georgia-Pacific Soil Amending Project as per Revised Monitoring and Reporting Program 86-3.

Sincerely,

Susan J. O'Leary

Susan J. O'Leary, Director
Environmental Health and Safety
WESTERN WOOD PRODUCTS MFG
California Wood Products

SJO:mm
Encl.

Ash has been applied and incorporated on an additional 1.8 acres during the month of August. Fifteen acres have been grass seeded with annual rye grass. These areas are being watered to establish the grass for erosion control. Final plans are being made to have Bud Thompson plant a clover/grass mix in September for perennial' cover. Grass seed has arrived, and plans are being made to complete the seeding the latter part of this month.

Stormwater Runoff Monitoring

No monitoring was conducted as there was no precipitation.

AUGUST REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PRDGRAM NO. 86-3

Monitoring

Volume of ash deposited by week - Cubic Yards of Ash - deposited at upper field of Area A.

August	01-02	160
	04-09	640
	11-16	660
	19-23	780
	25-30	820
		3060

Number of Treated Acres (Area A) ≈ 18.8 Acres
Number of Treated Acres* (Area W) ≈ 5 Acres

*All ash that was stockpiled has been amended.

Daily Precipitation Measurements		PPT (Inches)
August	1	0
	2	0
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0
	11	0
	12	0
	13	0
	14	0
	15	0
	16	0
	17	0
	18	0
	19	0
	20	0
	21	0
	22	0
	23	0
	24	0
	25	0
	26	0
	27	0
	28	0
	29	0
	30	0
	31	0

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

SEP 11 '86

☐ BK ☐ JC
☐ CJ ☐
☑ FR ☐
☐ RT ☐
☐ MH ☐
☐ BB ☐
☐ JG ☐ REPLY
Our STAFF ☐ FILE

September 9, 1986

Ms. Susan Warner
California Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Sue:

This letter is to confirm our phone conversation of September 5, 1986 in regard to the Little Valley Ash Project.

As I told you, we have spent considerable time and effort to amend the soil in a proper fashion to ensure that no ash will escape the site in the rainy season this year. I feel that we have done a good job, and I am looking forward to your inspection on the 16th.

As far as our up-coming winter stock pile, please find attached a map with my proposal. If you have any questions or comments, I'm sure we can iron them out on the site during your inspection. Looking forward to seeing you on the 16th.

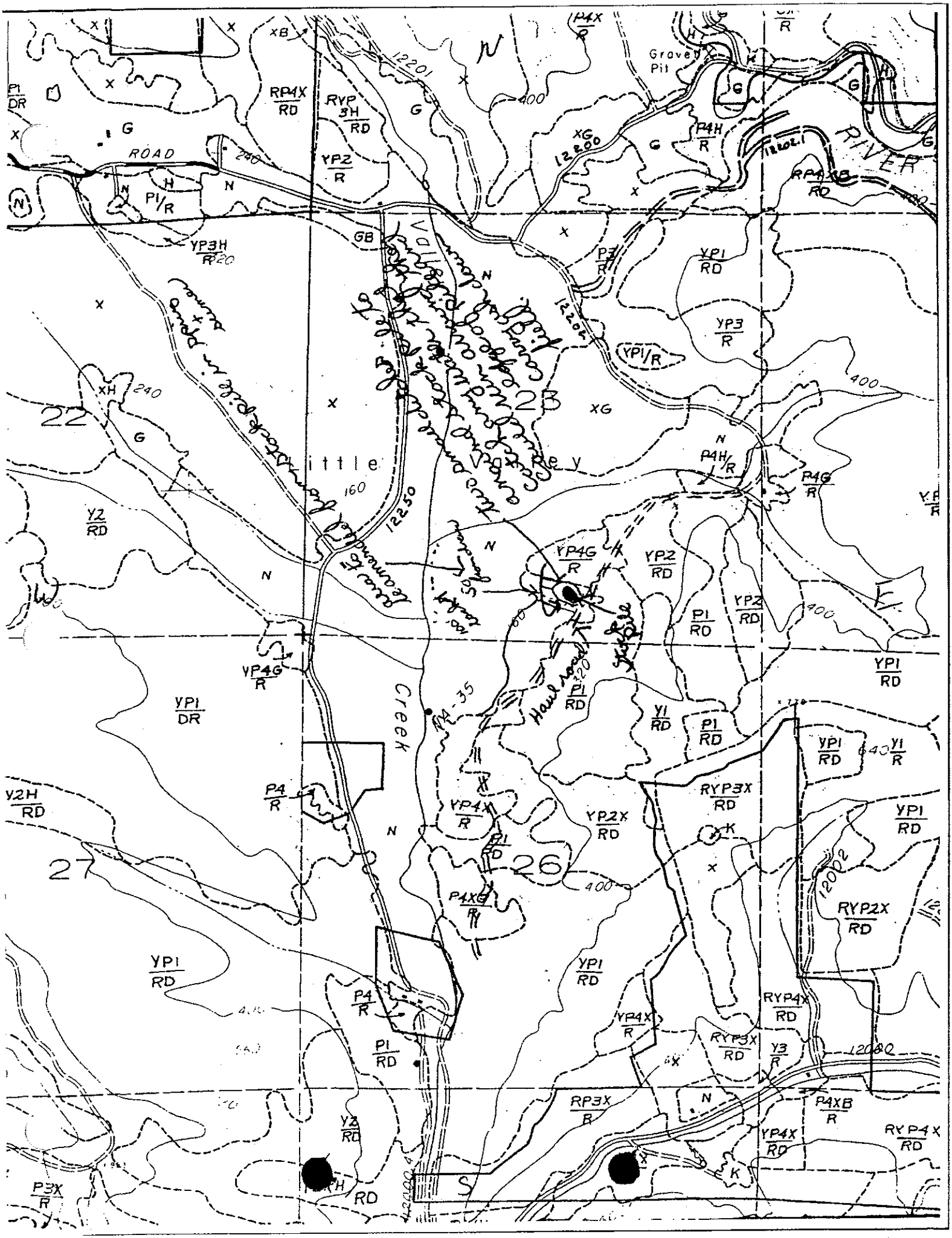
Sincerely,

Dave

David Larkin
Logging Superintendent
WESTERN WOOD PRODUCTS MFG
California Wood Products

DL:mm
Attach.

cc: Lowell Ambrosini (w/o attach.)
Jim Coon (w/o attach.)
Dow Jacobszoon (w/o attach.)


Gravel Pit
ROAD
RIVER
Little
Creek
Haul road
22
23
26
27
12201
12200
12202
12250
400
240
160
60
120
35

Kristy Sarconi
Coordinator
Toxic Substances Committee
Box 284
Comptche, Ck. 95427
Sept. 10, 1986

Mr. Tony Wong
Calif. Analytical Lab
2544 Industrial Blvd.
West Sacramento. CA. 95691

Dear Mr. Wong,

I am contacting you on behalf of Mrs. Ellen Giovannoni.

I was invited by Mrs. Giovannoni to accompany her on Sept. 9, 1986 when she purchased 4 boxes worth of woodwacte ash from a retail gardening supplies business in Fort Bragg, CA. This ash is a byproduct of the incineration process utilized by a lumber mill in Fort Bragg.

Mrs. Giovannoni mailed these boxes to you on Sept. 9, 1986. If they are not now in your possession, they will be in the near future.

As you may recall, Mrs. Giovannoni has sent material containing woodwaste ash in the past for analysis. In this instance, Mrs. Giovannoni has asked me to itemize the tests she would like done on this ash: dioxins, dibenrofurans, arsenic, and pentachlorophenol.

If you need specific authorizatinn from Mrs. Giovannoni before conducting these tests for her, or to confer with her before conducting the tests, please contact her at 31251 Turner Rd., Fort Hragg, CA. 95427, (707) 964-5172.

Please direct all further inquiries to Mrs. Giovannoni.

Sincerely,

Kristy Sarconi

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

SEP 1 5 '86

☐ BK ☐ RC
☐ CJ ☐ SW
☑ FR ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ All STAFF ☐ FILE

September 17, 1986

Benjamin D. Kor
North Coast Regional Water
Quality Control Board
1000 Coddingtown Center
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the August report for the Georgia-Pacific Soil Amending Project as per Revised Monitoring and Reporting Program 86-3.

Sincerely,

Dow G. Jacobszoon

Dow G. Jacobszoon
Resource Manager
WESTERN WOOD PRODUCTS MFG
California Wood Products

DGJ:mm
Encl.

Ash has been applied and incorporated on an additional 1.47 acres during the month of September. Ash was dumped in the winter storage area for eight days for a total of 56 loads. Approval has been given by Sue Warner to dump in the area during rain. This area is surrounded by a ditch.

ok Sue

Stormwater Runoff Monitoring

No monitoring was conducted during the month of September as there was no runoff due to the small amount of precipitation that occurred in September.

SEPTEMBER REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitorino

Volume of ash deposited by week	Cubic Yards of Ash	deposited at upper field of Area A.
September 02-06	660	
08-13	700	
15-20	880	
22-27	920	
29-30	300	
	3460	

Number of Treated Acres (Area A) ≈ 20.27 Acres

Number of Treated Acres* (Area W) ≈ 5 Acres

*All ash that was stockpiled ha5 been amended.

Dailv Precipitation Measurements	PPT (Inches)
September 1	0
2	0
3	0
4	0
5	0
6	0
7	0
B	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	.60
25	.60
26	0
27	.40
28	0
29	0
30	0

REPORT OF SOIL ANALYSIS

2 6.885

UNIVERSITY OF CALIFORNIA
COOPERATIVE EXTENSION LABORATORY

Lab number: D-86-S-2330
County: MENDOCINO
Submitted by: R.SHIPPEY/R.MEYER

No. of samples : 3
Date sampled : 07/08/1986
Date submitted : 07/16/1986
Date Reported : 09/22/1986

Identification: GEORGIA-PACIFIC SOIL SAMPLES Crop: PASTURE

Sample ##	Description	pH	EC	Ca+Mg	Na	OM-1	P	Bray-P	K	SO_4-S	NH_4-N	NO_3-N	Zn	Mn	Fe
			milli-mhos/cm	me/l	me/l	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	REP. I - PLOT #1	5.1	0.35	1.8	1.7	8.40	10.4	3.3	130	22.0	13.8	5.9	2.10	102.0	252.0
	" II- " #8	5.1	0.31	1.7	1.4	8.70	8.6	3.0	145	20.0	11.3	4.2	2.10	92.0	239.0
3	" III- " 117	5.1	0.22	1.1	1.1	6.90	6.5	2.2	120	9.8	8.2	6.0	1.70	68.0	235.0

Checked and approved:

CDL91586 D

P. BRAY P below 10PPM IS DEFICIENT.

K 150 PPM or lower IS DEFICIENT

SO_4-S 5PPM IS DEFICIENT

Mel Jones 1-12-87

Cooperative Extension

UNIVERSITY OF CALIFORNIA MENDOCINO COUNTY

COUNTY AGRICULTURAL CENTER
579 LOW GAP ROAD
UKIAH, CA 95482

707-463-4495

WATER QUALITY
CONTROL BOARD
REGION 1

SEP 30 '86

☐ BK ☐ RC
☐ CJ ☑
☑ FR ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☒ FILE

G-P soil amendment

September 29 1986

Sue Warner
1700 Coddington Center
Santa Rosa, CA 95401

Dear Sue:

Enclosed are the soil and fly ash analysis of the Little Valley plot on Georgia Pacific's land. I'm sending some shots of the plot going into the area.

The entire area of incorporation was seeded this week - September 22nd to 25th. The rains are coming just right.

Sincerely,

Rod Shippey

Roderick A. Shippey
Livestock Advisor

RAS/pg

REPORT OF MISCELLANEOUS ANALYSIS

Try non-compressed

UNIVERSITY OF CALIFORNIA
COOPERATIVE EXTENSION LABORATORY

Lab number: D-86-M-849
County: MENDOCINO
Submitted by: Shippey/R.Meyer/D.Osborne

No. of samples : 3
Date sampled : 07/08/1986
Date submitted : 07/16/1986
Date Reported : 08/07/1986

Identification: GEORGIA PACIFIC

Crop: PASTURE - CLOVER

Sample ##	Description	Ca	MG	K	Na	P	N	Ash	C	Cu	Fe	Mn	Zn
	REDWOOD FLY ASH TRIAL	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm
1	Rep. I-Plots 1-6, Redwood	3.02	0.62	1.73	0.42	0.18	0.08	45.3	54.7	50.0	1352	832	64.0
2	Rep. 11-Plots 7-12. "	3.22	0.66	1.82	0.47	0.26	0.08	57.2	42.8	51.0	1456	884	69.0
3	Rep. 111-Plots 13-18, Redwood & fir(?)	2.37	0.40	1.32	0.35	0.26	0.15	64.7	35.3	49.0	824	618	66.0

Checked and approved:

CDL73186

REPORT OF SOIL ANALYSIS

SEP 2 6 1986

Soil Sample's Analysis
Taken in the Control Cell

UNIVERSITY OF CALIFORNIA
COOPERATIVE EXTENSION LABORATORY

Lab number: D-86-S-2330
County: MENDOCINO
Submitted by: R.SHIPPEY/R.MEYER

No. of samples : 3
Date sampled : 07/08/1986
Date submitted : 07/16/1986
Date Reported : 09/22/1986

Identification: GEORGIA-PACIFIC

Crop: PASTURE

Sample ##	Description	pH	EC	Ca+Mg	Na	OM-1	P	Bray-P	K	SO_4-S	NH_4-N	NO_3-N	Zn	Mn	Fe
			millimhos/cm	me/l	me/l	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
1	REP. I - PLOT #1	5.1	0.35	1.8	1.7	8.40	10.4	3.3	130	22.0	13.8	5.9	2.10	102.0	252.0
2	" II- " #8	5.1	0.31	1.7	1.4	8.70	8.6	3.0	145	20.0	11.3	4.2	2.10	92.0	239.0
3	" III- " #17	5.1	0.22	1.1	1.1	6.90	6.5	2.2	120	9.8	8.2	6.0	1.70	68.0	235.0

Checked and approved:

CDL91686 D

THERE ARE MORE PAGES

Sue Warner

REPORT OF SOIL ANALYSIS

UNIVERSITY OF CAL
COOPERATI\ XTE

Lab number: D-86-S-2330B
County: MENDOCINO
Submitted by: R.SHIPPEY/R.MEYER

No. of samples : 3
Date sampled : 07/08/1986
Date submitted : 07/16/1986
Date Reported : 09/22/1986

Identification: GEORGIA-PACIFIC

Crop: PASTURE

Sample #	Description	Cu
		ppm
1	REP. I - PLOT #1	1.80
2	" II- " #8	1.80
3	" III- " #17	1.60

Checked and approved:

G J deBoer

CDL91686 D

Photos accompanying R. Tappe's 9/29/86
letter

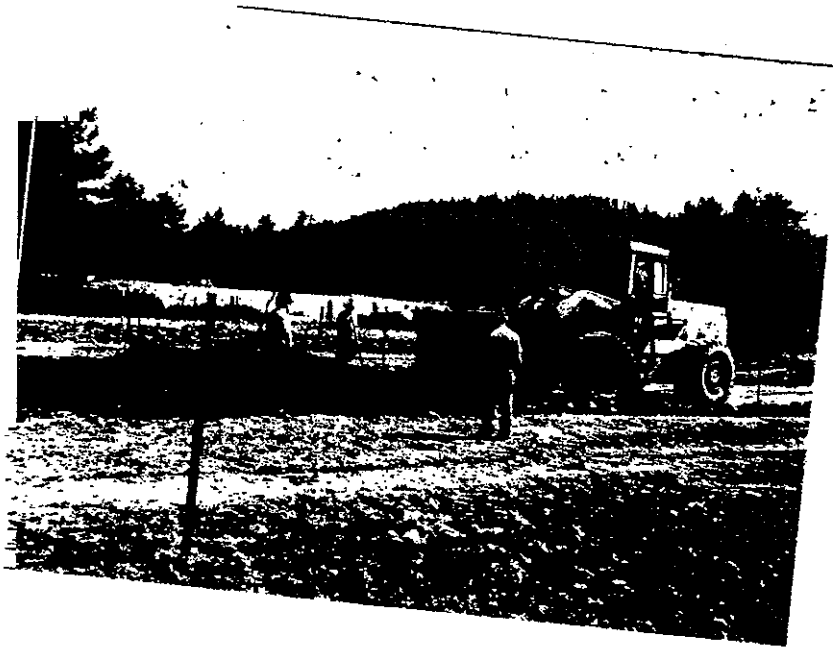
7/8/86

Little Valley Flyash Test Plot

7/8/86

2 LITTLE VALLEY FLYASH TEST PLOT.

SCREEDING BUCKET LOADER - 64 TONS/ACRE



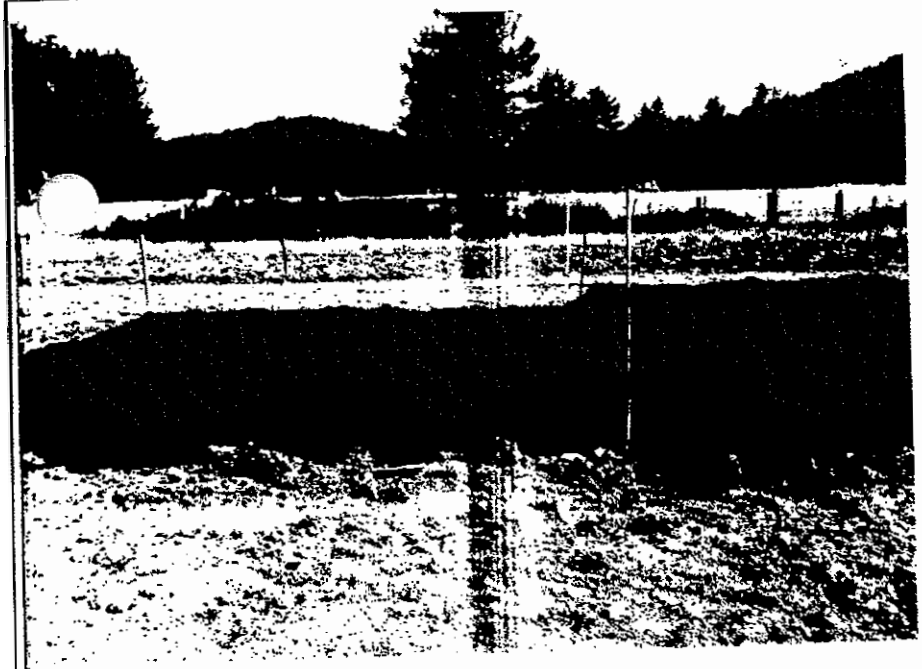
3 LITTLE VALLEY FLYASH PLOT 4/8/86

PLACING FLYASH

4. 5/18/86

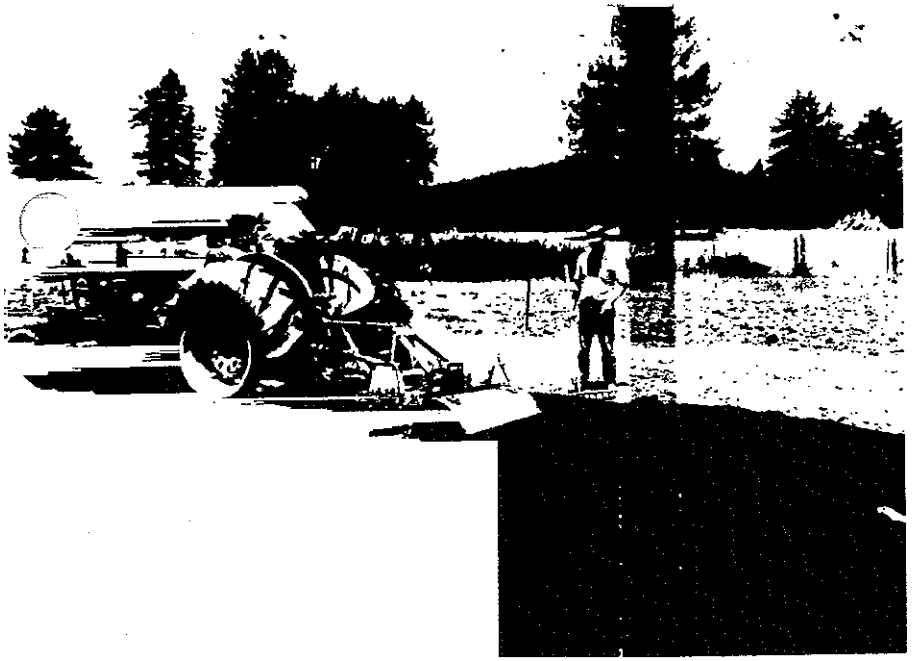
Fly Ash Plot - Little Valley

SPREADING ASH



5. LITTLE VALLEY FLY ASH PLOT 7/8/86

LEFT - 500 tons/ACRE
RIGHT - 1000 tons/ACRE

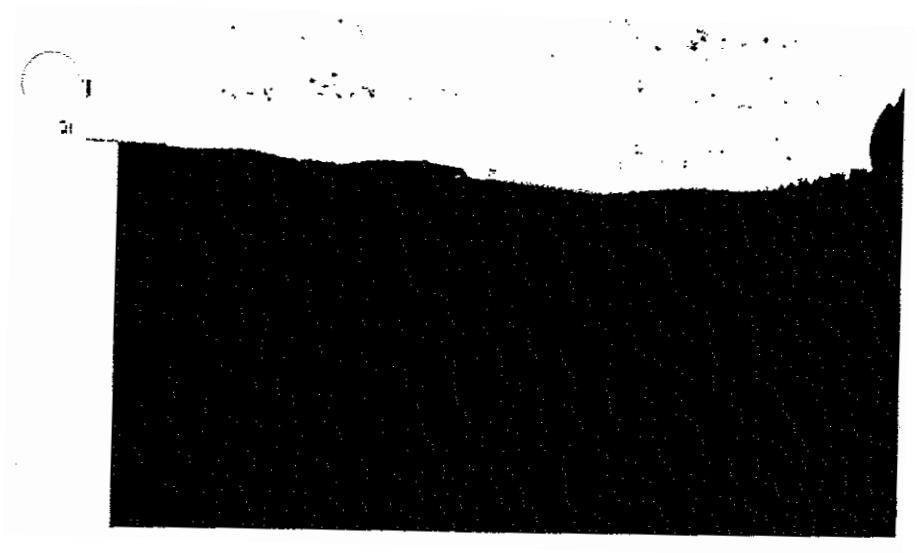


6. LITTLE VALLEY FLY ASH PLOT 7/8/86

ROTOTILLER WAS TOO LIGHT & NOT DEEP ENOUGH TO INCORPORATE THE ASH AT THE HIGHER RATE.

4. LITTLE VALLEY FLYASH PLOT 7/8/86

CHANGED TO CAT D7 WITH 5 GANG
DISK PLOW TO INCORPORATE ASH.
IT WORKED.



& LITTLE VALLEY FIRE ASH PLOT 7/8/86

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APPENDIX 2

06-096 DEPARTMENT OF ENVIRONMENTAL PROTECTION

RULES FOR LAND APPLICATION OF SLUDGE AND RESIDUALS

CHAPTER 567

MUNICIPAL SERVICES DIVISION
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION #17
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Amended October, 1985

D. Interim Standards for Sludges and Residuals Containing Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans (PCDDs and PCDFs)

D-1. ANALYTICAL REQUIREMENTS

D-1.a Initial Testing:

Initial testing of sludgr and residuals for PCDDs and PCDFs shall be required as follows:

Municipal Wastewater Treatment Plant Sludge -

No testing required for

- Publicly Owned Treatment Works (POTW's) with average daily flows less than 2.5 million gallons per day (mgd) and no pulp and paper tannery or textile related wastewater inputs.

Testing required for

- POTW's with average daily flows greater than 2.5 mgd.
- POTW's with average daily flows less than 2.5 mgd containing pulp and paper, tannery or textile related wastewater inputs.
- POTW's required to enact an Industrial Pretreatment Program according to U.S. EPA regulations contained in 40 CFR Part *403.*

Industrial Sludges and Residuals -

Testing required for:

- pulp and paper mill sludge
- tannery sludge or residuals
- textile mill sludge
- ash

The Department reserves the right to require initial testing for PCDDs and PCDFs in other industrial or municipal sludges and residuals based on the potential for these compounds to be present in the material. This determination shall be based on an evaluation of the chemical compounds known or suspected to be present in the waste stream from which the sludge or residuals originate and from the data base of analytical results developed by the Department.

D-1.b Follow-up Testing:

Follow-up testing for PCDDs and PCDFs shall be established by site license condition. The frequency of testing shall be determined based on the Department's data base of analytical results and the potential for PCDDs and PCDFs to be present in the material. Generators of sludges and residuals found to contain PCDDs and PCDFs shall be required to test quarterly for the first year to determine the variation in the PCDD and PCDF content of the material. The frequency of continued testing beyond the first year shall be evaluated on a case-by-case basis and established by license condition.

D-1.c Parameters to be Quantified:

Testing of sludgesand residuals as required in D-1.a shall consist of the following list of PCDDs and PCDFs:

PCDDs:

- 2,3,7,8 - tetrachlorodibeazo-p-dioxin (TCDD)
  total other TCDDs

- 2,3,7,8 - pentachlorodibenzo-p-dioxin (PeCDD)
  total other PeCDDs

- 1,2,3,6,7,8 - hexachlorodibenzo-p-dioxin (HxCDD)
  1,2,3,7,8,9 - HxCDD
  1,2,3,4,7,8 - HxCDD
  total other HxCDDs

- 1,2,3,4,6,7,8 - heptachlorodibewo-p-dioxin (HpCDD)
  total other HpCDDs

PCDFs:

- 2,3,7,8 - tetrachlorodibenzofuran (TCDF)
  total other TCDFs

- 1,2,3,7,8 - pentachlorodibenzofuran (PeCDF)
  2,3,4,7,8 PeCDF
  total other PeCDFs

- 1,2,3,6,7,8 - hexachlorodibenzofuran (HxCDF)
  1,2,3,7,8,9 - HxCDF
  1,2,3,4,7,8 - HxCDF
  2,3,4,6,7,8 - HxCDF
  total other HxCDFs

- 1,2,3,4,6,7,8 - heptachlorodibenzofuran (HpCDF)
  1,2,3,4,7,8,9 - HpCDF
  total other HpCDFs

D-1.d Sampling and Analysis of Sludges and Residuals for PCDDs and PCDFs:

Sampling and analysis of sludges and residuals for the PCDDs and PCDFs listed in D-1.c. shall be performed in accordance with the methodology developed by the Department in the document entitled, "Methodology for Sampling and Analysis of PCDDs and PCDFs in Sludge and Residuals".

D-2. TOXIC EQUIVALENCY FACTORS

The results of the sludge or residuals analysis as required in D-1. shall be used to calculate total 2,3,7,8-TCDD equivalents using the Toxic Equivalency Factors in Table 1.

Table 1 shows the relative toxicities of mixture of PCDDs and PCDFs. Note: The method of calculating 2,3,7,8-TCDD Equivalent Toxicities was developed by the EPA Chlorinated Dioxins Workgroup in their position document entitled "Interim Risk Assessment Procedures for Mixtures of Chlorinated Dioxins and Dibenzofurans (CDDs and CDFs)", April 1985. Analyses which are submitted that do not delineate between 2,3,7,8 substituted isomers of PCDDs and PCDFs and other PCDDs and PCDFs for each congener class shall be considered to consist solely of 2,3,7,8 substituted isomers.

Table 1

PCDDS	TEF(1)	PCDFS	TEF
2,3,7,8-TCDDs	1	2,3,7,8-TCDFs	0.1
total other TCDDs	0.01	total other TCDFs	0.001
2,3,7,8-PeCDDs	0.5	2,3,7,8-PeCDFs	0.1
total other PeCDDs	0.005	total other PeCDFs	0.001
2,3,7,8-HxCDDs	0.04	2,3,7,8-HxCDFs	0.01
total other HxCDDs	0.0004	total other HxCDFs	0.0001
2,3,7,8-HpCDDs	0.001	2,3,7,8-HpCDFs	0.001
total other HpCDDs	0.00001	total other HpCDFs	0.00001

(1) Toxic Equivalency Factor

D-3. LAND APPLICATION CRITERIA

In addition to the criteria established in Fart B-2 and B-3 of .Chapter 567, the criteria contained in this section shall apply to sludges and residuals containing PCDDs and PCDFs as quantified using the protocol established in "Methodology for Sampling and Analysis of PCDDs and PCDFs in Sludge and Residuals", contained in Appendix C.

D-3.a Maximum Allowable Concentrations of 2,3,7,8-TCDD Equivalents:

Generators of sludges and residuals containing PCDDs and PCDFs shall be allowed to land apply their materials if the following maximum allowable concentration limit in the sludge or residual is not exceeded:

250 ng/kg (ppt) total 2,3,7,8 - TCDD equivalents (dry weight).

Generators of sludges and residuals containing PCDD's and PCDF's at levels of 27 ppt 2,3,7,8 TCDD equivalents or below are exempt from chapter 567, Part D.

The maximum allowable soil concentration limit on sites where sludges and residuals containing PCDDs and PCDFs are landspread shall be:

27 ng/kg (ppt) total 2,3,7,8 - TCDD equivalents (dry weight).

Soil is defined as the combination of the top six inches of soil and the sludge or residual. The soil concentration can be calculated using the following equation:

(Sludge Concentration X Application Rate) : (2,000,000)= Soil Concentration
(ppt) (lb/acre) (lb/acre-6") (ppt)

Note: All values expressed on a dry weight basis.

If the maximum allowable soil concentration limit for a particular landspreading site is shown to have been exceeded by use of this formula, the licensee shall be in violation of this section. Evidence that no violation has occurred may be demonstrated by the Licensee through analysis of the soils. The soils test shall be performed in accordance with the methodology developed by the Department in the document entitled, "Methodology for Sampling and Analysis of PCDDs and PCDFs in Sludge and Residuals".

D-3.b Site Management Requirements:

1. A11 sites proposed for land application of sludges or residuals containing PCDDs and PCDFs shall have a soil conservation plan with soil conservation measures in effect. The conservation plan shall include'soil loss calculations (using the Universal 'Soil Loss Equation) which demonstrate soil losses not in excess of 3 tons per acre per year. Conservation plans shall be reviewed and-the soil loss rate re-calculated annually to confirm that the 3 tons per acre per year limit is maintained. Licensees shall submit their calculations to the Department annually for approval.

2. There shall be no pasturing of livestock and fowl whose products are consumed by humans on fields that receive sludges or residuals containing PCDDs and PCDFs.

3. There shall be no application of sludges and residuals containing PCDDs and PCDFs to land on vhich crops for human consumption are grown. Crops fot human consumption are defined as all vegetable and fruit crops that are consumed by humans.

4. Winter field stacking-and use of permanent storage facilities shall be considered for approval by the Department on a case-by-case basis. Winter field stacking areas and storage facilities may be approved prwided measures are in place to eliminate the physical movement of the material from the storage area, and to minimize the potential for livestock or humans to be exposed to the-stockpiled material.

5. When filing an application for sludge and residuals utilization with the Department, the applicant shall submit a copy of a statement signed by the landowner and, if different, the operator of the site, that specifically acknowledges the presence and concentrations of PCDDs and PCDFs in the material to be spread, and the ability and willingness of the landowner to comply with the criteria in the Part D of Chapter 567.

6. The restrictions of no pasturing of livestock or fowl whose products are consumed by humans and prohibition of growing crops and fruits intended for human consumption shall apply to subsequent purchasers of the land utilization site. It shall be the responsibility of the utilization site licensee, landowner or any subsequent landowner to notify any purchaser that sludges and residuals containing PCDDs and PCDFs were land applied to that site and that subsequent owners are subject to use restrictions under this regulation.

HxCDFs	0	0.0001	0.29	0	0	0	0.1	0.1	2.3	0.01	0	0.23	0	1	0	23	0	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2378-HpCDF	93	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HpCDFs	0	0.00001	0.093	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OCDF	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total 2378-TCDD equivalents			11.0			4			21.4																										207

Part If

1989 Update to the Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-*p*-Dioxins and -Dibenzofurans (CDDs and CDFs)

March 1989

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D-4. CRITERIA FOR COHPOSTED SLUDGE AND RESIDUALS

Sludges and residuals containing PCDDs and PCDFs may be composted. Distribution and use of the compost shall be limited as follows:

The maximum allowable concentration of PCDDs and PCDFs in compost shall be 250 ng/kg (ppt) total 2,3,7,8-TCDD equivalents (dry weight).

Quantities of 6 yd^3 or less: (per year)	May be distributed to the public for use in lawns and flower gardens without a utilization license from the Department. Generators of compost containing PCDDs and PCDFs shall develop a release form to be executed by landowners receiving compost. The release form shall indicate the'presence and concentration of PCDDs and PCDFs in the compost, and shall state that tbe compost shall not be used for growing crops for human consumption, applied to land where livestock or fowl are allowed to graze, nor placed within 300 ft. of surface waters.
Quantities in excess of 6 yd^3: (per year)	Landowners receiving more than 6 yd^3 of compost (per year) shall apply for a utilization license from the Department and comply with the criteria in Parts A, B, C and D of Chapter 567.

ATT. #2

Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-*p*-Dioxins and -Dibenzofurans (CDDs and CDFs)

October 1986

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Chapter 12

PREDICTION OF THE ENVIRONMENTAL FATE OF TETRACHLORODIBENZODIOXIN

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INTRODUCTION

Dioxins are now widely distributed in the environment and have caused great concern because of the extreme toxicity of some of the congeners, particularly TCDD. The polychlorinated dioxins (PCDD) appear to k famed in the manufacturing of chlorinated intermediates and pesticides and in the incineration of chlorinated wastes; tlk application of pesticides containing trace quantities of TCDDs does not appear to be a significant source of these compounds in the environment although further study of this issue probably is required. During the past ten years, environmental chemists have developed increasingly reliable methods for measuring rates and pathways for tk movement and transformation of organic chemicals in air, water, and soil. The objective of this paper is to outline the framework that has been established and to review the dara available f a TCDD. From these, predictions can k made about the environmental fate of TCDD and, by analogy, the fate of its congeners. Toxicity, distribution in the environment, and analytical methods for TCDD and other chlorinated dioxins are treated in other papers in this volume as well as in numerous ether publications and has been summarized by Hutzinger et al. (1982).

Environmental fate estimates are used to provide a sound basis f a evaluating the possible hazard associated with the production and/or release of a particular chemical into some compartment of the environment In Figure 1, the relationships between environmental fate estimates, biological effects and hazard assessments are indicated. Ideally, it would k possible to quantitatively predict the rates of movement and transformation within a compartment and between different compartments and the variation in concentration of a chemical in a particular compartment with time. However, there are usually too few reliable data available from which to make very precise or quantitative estimates. Investigators typically circumvent this difficulty by using model compounds a structure activity relationships (SAR) to obtain reliable data for such estimates.

Models for aquatic or atmospheric systems can be used to integrate fate data over time and space to obtain estimates of concentration as functions of location, time and environmental variations. Evaluative environmental models (such as EXAMS) can be applied to a particular locale only imprecisely but they can be valuable screening tools for problem chemicals such as TCDD.

One of the key data elements needed for reliable fate estimates is the rate of input of the chemical into the environmental compartment of concern. Input can arise from adventitious losses during production, from use or from movement from one compartment to another by volatilization a sorption. Unfortunately, production data

This is in good agreement with the value of K_{ow} calculated by Johnson (1982) using fragment additivity. K_{ow} serves as a useful index of how much TCDD will partition to organic phases such as those found in sediment. The actual value of the partition coefficient for sediment sorption, K_{oc}, may be estimated from the relation of Chiou et al. (1979) assuming the solubility of TCDD is 6×10^{-10} M (Table 2).

$$\log K_{oc} = -0.557 \log S + 4.277 \quad (2)$$

(S in μ moles/L)

$$K_{oc} = 1.1 \times 10^{6}$$

This value is somewhat smaller than K_{ow} a the value of K_{oc} fmm Karickhoff et al, (1979) which b derived from the following equation:

$$\log K_{oc} = 1.00 \log K_{ow} - 0.21 \quad (3)$$

$$K_{oc} = 8 \times 10^{6}$$

We can safely assume that TCDD will partition between sediment a biota and water in a concentration ratio between 10^6 and 10^7. Experiments show that TCDD is strongly bound to soil or sediment and leaches into the water column only at an extremely low rate (Wipf et al., 1978). Actual rats constants f a sorption a desorption of TCDD from sediments or soil samples are not available; however. we can extrapolate from measurements reported by Karickhoff (1983) on sorption of polycyclic aromatic compounds such as pyrene and methylchloranthrene. Rates of desorption of these compounds from sediments are a function of the length of contact between the chemical and the sediment and exhibit an unusual time dependence (t½). This is due to a complex process in which the rate controlling step may be diffusion into and out of sediment pores. F a methylcholanthrene, increasing the contact time fmm 5 days to 56 days prior to desorption led W an almost ten-fold decrease in the rate of desorption of the compound into pure water. From these results it can be inferred that TCDD in continuous contact with sediments and soils will reequilibrate with water or leach from soil at an extremely low rate; the likelihood that TCDD will leach into groundwater is probably fairly remote. Complete equilibration between sediment and vatu should require hundreds of days.

Volatilization

Volatilization of TCDD from soil surfaces or from water can be treated fairly accurately using simple relationships based upon vapor pressure and vatu solubility. Jaber and Podoll (1983) recently measured the vapor pressure of pure TCDD at 25°C (Table 2). Their method, which relies on measuring the amount of ^{14}C-labeled TCDD trapped on an activated carbon trap fmm saturated vapor gave a value of $(7.6 \pm 0.4) \times 10^{-10}$ torr.

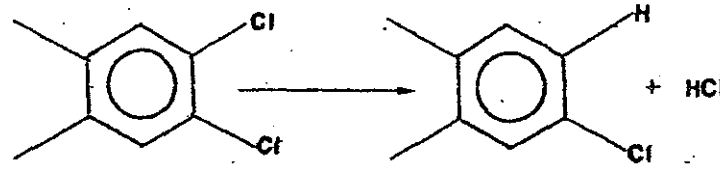
This low vapor pressure means that TCDD will volatilize slowly from soils, with a half-life of many months or years, in the absence of intervening transformation processes. Under some circumstances, volatilization of TCDD and its congeners from soils may be rapid enough to compete with photolysis but additional research is needed to establish this point.

Volatilization of chemicals from water is controlled by diffusion both in the water column and in the gas phase directly above the water surface. Theoretical models f a volatilization were developed by Liss and Slater (1974), Mackay and Leinonen (1975) and Smith et al., (1981, 1983). The first order volatilization rate constant, k_v, is given by the relation:

$$k_v = \frac{1}{L}\left(\frac{1}{k_w} + \frac{RT}{Hk_a}\right)^{-1} \quad (4)$$

Akermark, Liberti et al., and Wipf et al. (all 1978) suggest that, in field situations on soils or leaf canopies, TCDD can photolyze fairly rapidly in sunlight. Studies at Seveso following the widespread distribution of TCDD in the surrounding soil and air showed that the TCDD content of grass growing in soil plots exposed to sunlight over a period of ten days in September 1976 decreased as much as ten-fold (Wipf et al., 1978). Control experiments in the dark confirm that photolysis, not volatilization, was the cause of the decrease.

In 1971, Crosby and his coworkers reported a study of the photolysis of TCDD in solution and in the solid phase (Crosby et al., 1971). Their findings and those of subsequent workers have been summarized in detail by Choudhry and Hutzinger (1982). The UV photoreaction of TCDD and its isomers and homologs resembles that of other chlorinated aromatics; in organic solvents C-Cl bonds are reduced to C-H bonds with formation of HCl via a free radical mechanism.



Several workers, including Crosby et al.(1971), Desideri et al. (1979) and Buser (1979) reported that the first step in the photolysis of TCDD is formation of 2,3,7-trichlorodibenzodioxin and that this is followed by rapid photolysis to the dichloro, monochloro and parent dibenzodioxin. Experiments carried out in sunlight indicate that the hall-life of TCDD in alkanes and methanol is about 3-4 hours. Dobbs and Grant (1979) reported that the photolyses of more chlorinated dioxins in sunlight gave half-lives ranging from 5 to 47 hours, while Desideri et al. (1979) reported that tri- and di-chlorodioxins photolyzed much faster than TCDD. The maximum yields of these products were only 6 to 8% in alkane solvents.

Rapid photolysis of TCDD to the parent dioxin and possibly simpler structures is encouraging evidence for rapid environmental transformation of TCDD to much less toxic compounds. However direct comparison of the rates of photolysis of various TCDD homologs and isomers is difficult because the quantitative information needed to estimate these rates under standard conditions of sunlight generally is not available.

At this point it is useful to briefly review the kinetics of photochemical processes in surface waters or in the atmosphere and to estimate photolysis rate constants for TCDD in air or water. For dilute solutions of light-absorbing chemicals the rate of photolysis is given by the relation (Zepp and Cline, 1977):

$$d[C]/dt = 2.3\phi I_A = 2.3\phi I_0 \epsilon [C] \qquad (7)$$

where I_A and I_0 is the absorbed or incident light in units of photons or einsteins/cm^2, ϵ is the absorption coefficient at a particular wavelength, ϕ is the quantum yield or efficiency of the photo process and [C] is the concentration of the chemical.

Thus, the rate constant for photolysis of chemicals in dilute solutions depends on the absorption coefficient of the chemical, the quantum yield and the light intensity at wavelength. In sunlight, the rate of photolysis is given by the relation:

$$d[C]/dt = \phi(\Sigma \epsilon_\lambda I_\lambda)[C] \qquad (8)$$

SOURCE, DISTRIBUTION AND FATE - WORKSHOP SUMMARY

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Jean Czuczwa
John Giesy
Otto Hutzinger
Theodore Mill
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David Stalling

INTRODUCTION

In the past, encounters wi chemicals similar to dioxins (e.g. DDT PCBs) were with compounds known to have certain properties which made than useful to society. Dioxins, however, do not serve our society in any capacity. They are formed as inadvertent by-products of chemical production and combustion processes. Although the compounds with which dioxins are associated are useful, technology is now available to essentially preclude dioxin contamination. Therefore, scientists need not weigh their benefits against their risks but, instead, must evaluate the risk of their presence and then judge the desirability of removal and prevention. For an accurate risk assessment, it is necessary to evaluate their toxicity, understand how they enter our environment, determine their transport and distribution, and ascertain how their fate can be managed given various remedial alternatives. Evaluation of these and related issues are so complex &atinvestigators have to rely on a variety of's~~& including theoretical expectations, interpretation of process specific data, inferences from field data and lessons learned from previous encounters with similar chlorinated hydrocarbons. A constraint in understanding the behavior of dioxins in the environment is that many of our past research and present regulatory efforts have focused on a single dioxin isomer, 2,3,7,8-TCDD. Some aspects of the behavior of other dioxins can be inferred from knowledge of 2,3,7,8-TCDD, but caution should be exercised when making inferences based on limited data. Participants of this workshop session relied on a broad range of experience to accomplish the goals of the workshop which were to summarize our present state of knowledge on dioxin presence and persistence, discuss areas of uncertainty and present research recommendations. These deliberations are summarized by identifying known sources, describing observed distribution, and discussing the factors which determine the fate of dioxins in the environment.

SOURCES

A great deal of effort has been exerted, thus far, to identify the sources of dioxins in the environment. In 1980, the EPA reviewed in detail the possible sources, including organic chemical production and emissions from combustion sources (Esposito et al., 1980). These studies identified the production of herbicides, the disposal of waste, and combustion as important sources of dioxins.

Recently, the EPA initiated a "Dioxin Strategy" (USEPA, 1983) as mandated by Congress. As part of this multi-million dollar strategy the M A identified seven "study tiers", based on their decreasing potential for contamination, which will be monitored for dioxins. Four of these study tiers are aimed at sites that might be contaminated with 2,4,5-

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contaminated with
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identifies the culprit. However, experience has shown that the variability of incineration and production processes, as well a the interim environmental transformations of one congener to another, makes fingerprinting impractical. Probably the primary method by which to assign responsibiltiy of source is classical data interpretation. F a example, elevated dioxin levels in fish and sediment samples will be in the vicinity of a downriver from the responsible source. Diffuse sources, like widespread combustion, will rarely be responsible f a elevated levels identified in 1 location having well defined boundaries.

DISTRIBUTION

The distribution of dioxins may be dealt with in two parts. The first is an inventory of how dioxins are distributed among physical compartments - air, soil and water. The second is an important exposure factor known as biomagnification. Biomagnification is evident when dioxins are more concentrated in successively higher trophic levels of biota (e.g. insects<fish<predatory birds). These two aspects of dioxin distribution are summarized herein.

Airborne transport of dioxins has been identified as a major force in the distribution of dioxins over wide areas and is perhaps responsible for the now nearly ubiquitous distribution. Air particulates from municipal areas have been measured at the part per billion (ppb) level and are enriched with octa-dioxins (Czuczwa and Hites, 1984). In one area, Midland, Michigan, where combustion of chemical wastes occurred nearby, parts per million (ppm) levels of hepta- and octa-chlorodioxins were observed in dust samples from a research building.

Soils are the most frequently sampled physical compartment for the analysis of dioxins. In Times Beach, Missouri, the action level for the EPA to define the boundaries of evacuation and buy-out, as defined by the Centers for Disease Control, was based on soil levels in excess of 1 ppb of 2,3,7,8-TCDD. Soils having 2,3,7,8-TCDD levels in excess of this have been observed in a number of areas, but all having locally attributable sources (Esposito et al., 1980). Because dioxim are highly hydrophobic they are partitioned to soils and are relatively immobile. Studies using different soil types indicate that migration of TCDD is very slow, especially in soils high in organic content (Kearney et al., 1973; Matsumura and Benezet, 1973). These observations suggest that contamination of groundwater supplies through percolation of contaminated soils is unlikely and that soil contamination boundaries are rather stable.

Knowledge regarding levels of dioxins in natural waters is nearly nonexistent. A number of samples have been measured at detection limits of parts per trillion (ppt) and reported as not detected. Wastewater effluent samples from Dow Chemical measured by the US EPA indicated that 2,3,7,8-TCDD was present at 50 parts per quadrillion (ppqd) prior to entering the Tittabawassee River, Michigan. The capability and experience necessary to measure water samples at the parts per quadrillion (ppqd) level has been so rare historically that Dow Chemical Company used reported biomagnification factors (e.g. 6,600) to infer water concentrations from indigenous fish data (Forney, 1983) and thereby estimated levels of 6 ppqd of TCDD in the Tittabawassee River. The Connecticut Department of Environmental Protection recently reported levels of approximately 140 ppqd in an initial sample from a "test well" drilled through a disposal site (Laurel Park, Inc. et al. v. Stanley B. Pac, Commissioner). This level has not been replicated in subsequent samples following standard procedures. It is necessary that the investigator assessing water samples be prepared for the extraordinarily vigorous quality assurance demands of sampling and measuring dioxins at the parts per quadrillion level.

The concept of biomagnification is critically important in determining the exposure levels in a risk assessment. Evidence of bioconcentration has been presented (see Sources) and is a widely accepted phenomenon. However, bioconcentration alone implies only that biota incorporate dioxin from environmental sources within body tissues.

WORKSHOP SUMMARY

The final tuk of the workshop participants was to issue a joint statement regarding the issuer discussed during the proceedings and examined herein. These are the unanimous opinions of this workshop session regarding six areas of inquiry. These statements were read to the press and public at the conclusion of the workshop.

1. Sources

In locations where dioxins are observed at elevated levels their presence is attributable to local sources. This is indeed noteworthy; even though the worldwide total amount of dioxins may originate from many sources, high levels in water, soils and fish are invariably associated with a local source. Therefore, if toxic effects are of concern, these locations and sources would be of special concern. Furthermore, we concluded that th major source of dioxins n terms of elevated levels are typically manufacturers of chemicals which ar contaminated with dioxins. This would clude the manufacturers' disposal sites. On the other hand, proper application o low concentrations of herbicides that are contaminated with dioxins does not pose a significant contamination event.

2. Distribution of Dioxins

Dioxins and similar chemicals such as furans have or are approaching ubiquitous distribution. These chemicals can be distributed to remote areas by atmospheric transport. The introduction of dioxins to the atmosphere occurs due to incineration of wastes and wood, as well as transfer from contaminated soils to the atmosphere. In addition, it was noted that dioxins from incineration are typically composed primarily of less toxic forms of dioxin.

3. Fate of Dioxins

The workshop participants demonstrated that scientists do know the factors which influence the fate of dioxins and furans in our environment and food sources. The problem, however, is that we cannot now quantify the relative importance of these factors. In particular, the field and laboratory data are not available to accurately measure these factors. Fulfillment of these needs, therefore, would require well focused field monitoring programs and laboratory studies.

4. Risk Assessment

In reviewing the process of evaluating how dioxins a other chemicals from a source might impact a human population we found that many of the requirements of assessment are indeed recognized and that related programs are underway. However, there are specific links in our chain of clearly defining human risk which are missing a inadequate. For instance, in the soils of contaminated areas such as Times Beach, Missouri, and Midland, Michigan, we do not know the exposure levels or the bioavailability of dioxins once exposure occurs.

5. Remedial Alternative

While there have been a number of mitigative actions proposed for sites contaminated with dioxins, including incineration of soil, disposal of soil and containment of site, the working group recommended that on-site methods of dioxin

Rec'd 10-29-85
DR 005 ATT. # 10

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE. P.O. BOX 9583
LITTLE ROCK. ARKANSAS 72209

October 25, 1985

PHONE: (501) 562-7444

Docket Clerk
Office of Solid Haste (HH-562)
U. S. Environmental Protection Agency
401 M Street SW.
Washington, D.C. 20460

Re: Section 3001/Dioxin Residues

Dear Sir:

The Arkansas Department of Pollution Control and Ecology is currently deeply involved with federal. state, and local government agencies, as well as local citizen groups, to develop a safe, efficient and economical method for disposal of approximately 3,000 drums of 2, 3, 7, 8 TCDD contaminated waste and 22,000 drums of 2, 3. 7, 8 TCDD-free acutely hazardous waste from previous manufacturing at the Vertac Chemical Company in Jacksonville, Arkansas.

The regulatory agencies have accepted a plan of on-site incineration by an EPA certified mobile incinerator (in process). The issue of residual waste management has effectively guided this project from the inception. He applaud the efforts to resolve the issue through reasonable regulatory changes. However, for the reasons enumerated below, we do not believe the September 12, 1985, proposed changes to 40 CFR Parts 261 and 271 to be reasonable.

1. The basic premise of 2, 3, 7, 8 TCDD TEF's is flawed because there is, to this writer's knowledge, no scientific basis for establfshing the human toxicity of 2, 3, 7, 8 TCDD. This invites widespread misunderstanding concerning the potential toxicity and risk associated with any waste stream subjected to this regulation.

2. The analytical cost associated with 2, 3, 7, 8 TCDD TEF's will be prohibitive, both on the waste stream and the residues. Additionally, laboratory standards are not available for many of the isomers. This will further prolong timely regulatory action.

3. It would seem imperative that a regulatory approach on residue management should focus on the residues and not the waste feed. Since some incinerators can be expected to achieve better than six 9's DRE, a threshold level(s) in the residue should guide classification and disposal options (not unlike the PCB approach). Since application of the 'Derived From Rule' further limits residue disposal options, waste feed concentration limits do enable the process to proceed.

He must keep in mind the basis of RCRA, i.e. resource conservation and recovery. The resources we are using both in disposal capacity and capital in dealing with these wastes must bear some relationship to the relative envfronmental threat. It has essentially been established that 1 ppb in residential soils is a safe level. To require severe environmental controls on residue which is several orders of magnitude below these action levels is both unnecessary and wasteful.

It is possible to recover and reuse much of the incineration waste heat, scrubber residue, and water. Burdensome regulations impede this effort, drive up cost, and provide a negative environmental benefit.

Sincerely.

Robert E. Blanz (RB)

Robert Blanz, Ph.D., PE
Deputy Director
Program Operations

REB/ie

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

October 7, 1986

WATER QUALITY
CONTROL BOARD
REGION 1

OCT 8 '86

☐ BK ☐ RC
☐ CB
☑ FR
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☐ FILE

Mr. Benjamin D. Xor
North Coast Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the September report for the Georgia-Pacific Soil Amending Project as per Revised Monitoring and Reporting Program 86-3.

Sincerely,

Marita N. Martin

Marita N. Martin
Forestry Secretary
WESTERN WOOD PRODUCTS MFG
California Wood Products

mnm

Encl.

LOADS OF ASH TO LITTLE VALLEY PER DAY

	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MONTHLY TOTAL
MAY 1986	883 779784 695662 676574 568876	170
JUNE 1986	557662 484554 446664 557562 5	126
JULY 1986	5553 27754 65443 55222 5564	101
AUGUST 1986	35 647366 546774 475788 585760 10	153
SEPTEMBER 1986	576411 477458 513756 8 511897 6 510	173
OCTOBER 1986	87 810 467 85 12 676 8 10 12 457138 6 8857 7	202
NOVEMBER 1986		

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 10-30-86
DATE IN LAB 10-31-86
COLLECTED BY S. Petrin
SAMPLE TYPE Water

LABORATORY NO.:	6-5001	6-5002	
CLIENT I.D. :	Little Valley # 6	Little Valley # 7	
NFR	23	25	mg/L

RECEIVED
NOV 07 1986

Alpha
Analytical Laboratories, Tnc.

LABORATORY DIRECTOR 11-5-86
DATE

Ash has been applied and incorporated on an additional 2.4 acres during the month of October. Due to wet ground conditions, ash was dumped in the winter storage area for five days (October 27–31) for a total of 35 loads. Approval has been given by Sue Warner to dump in the area during rain. This area is surrounded by a ditch.

Stormwater Runoff Monitoring

Low soil moisture and little precipitation produced no flow of sufficient volume to sample before October 30. Pools on the main stream, flowing into Little Valley Creek, were observed to fill and produce small amounts of flow, but this went sub-surface above sampling points so was not available to sample. Inspection on October 30 showed this stream to be fluwing, so it was sampled for pH and suspended solids at Points 6 and 7. All other drainages had no flow. Results are as follows:

Sampling Date: October 30, 1986

	Point 6	Point 7
pH	6.3	6.3
SS(mg/l)	23	25

The lab sheet for SS is enclosed. The pH was measured by 6-P personnel (Steven Petrin).

OCTOBER 1986 REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by week		Cubic Yards of Ash - drposited at upper field of Area A.
October	01-04	660
	06-11	840
	13-18	980
	20-25	860
	27-3I	700

Number of Treated Acres (Area A) a 22.47 Acres
Number of Treated Acres (Area W) ⁎ 5 Acres

Daily Precipitation Measurements		PPT (Inches)
October	1	0
	2	0
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0
	11	0
	12	0
	13	0
	14	0
	15	0
	16	0
	17	0
	18	0
	19	0.15
	20	0
	21	0
	22	0
	23	0
	24	0.35
	25	0
	26	0.55
	27	0
	28	0
	29	0.85
	30	0
	31	0

California Analytical Laboratories
2544 Industrial Boulevard ♦ West Sacramento, CA 95691 ♦ (916) 372-1393

A DIVISION OF
ENSECO
INCORPORATED

October 9, 1986
Lab No. 26198
Received: 9-15-86

Ellie Giovannoni
31251 Turner Road
Fort Bragg, CA 95437

One woodwaste ash sample was received in four large plastic bags. This was subsampled and stored in an eight ounce wide mouth jar prior to analysis for total tetra through octachloro dioxins and furane, pentachlorophenol (PCP), and arsenic.

CAL I.D.	Sample I.D.
26198	NO I.D.

RESULTS

The dioxin and furan results are on the enclosed data sheets. The pentachlorophenol (PCP) and arsenic results are as follows:

CAL I.D.	ug/Kg (ppb) PCP	mg/Kg (ppm) Arsenic
26198-MB	<0.2	---
26198	<1	3.4

Ben N. Buechler
Director of
Chromatography Services

mbj

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO. 26198

CLIENT ID: WOODWASTE ASH Date Analyzed: 10/6/86 Column: DB-5

CAL ID: 26198 Weight: 10.09 g

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)	
tetra (total)	ND	0.033	*
penta	ND	0.10	
hexa	ND	0.34	
bepta	ND	0.20	*
octa	ND	0.27	*
DIOXINS			
tetra (total)	ND	0.015	*
penta	ND	0.13	
hexa	ND	0.12	
hepta	ND	1.5	*
octa	3.7 ppb	-	

% Accuracy 37Cl-TCDD = 105.9

ND = Not Detected

Hexa calculations are based on Penta Internal Standard

* MPC- maximum possible concentration

PREPARED BY: DB

APPROVED BY: [signature] DATE: 10/8/86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO. 26198

CLIENT ID: METHOD BLANK Date Analyzed: 10/6/86 Column: DB-5

CAL ID: 26198-1MB Weight: 10.0 g

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.020
penta	ND	0.11
hexa	ND	0.32
hepta	ND	0.058
octa	ND	0.16
DIOXINS		
tetra (total)	ND	0.037
penta	ND	0.074
hexa	ND	0.097
hepta	ND	1.9
octa	ND	0.21

% Accuracy 37Cl-TCDD = 108%

ND = Not Detected

Hexa calculations are based on Penta Internal Standard

PREPARED BY: DB

APPROVED BY: [signature] DATE: 10/8/86

CERTIFIED-Return Receipt Requested

October 30, 1986

Don Jacobzoon
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Mr. Jacobzoon:

Enclosed is Revised Monitoring and Reporting Program No. 86-3 for the Little Valley soil amendment project. You will note that I have deleted sampling stations and added two new stations to reflect on-going operations at the site. Please do not hesitate to call me if you have any questions in this matter.

Sincerely,

Susan A. Warner
Assoelate Engineering Geologist

Enclosure

[redacted]

[redacted]: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
[redacted]ddress in the "RETURN TO" space on the reverse side. Failure to do this will prevent this [redacted]being returned to you. The return receipt fee will provide you the name of the person [redacted] and the date of delivery. For additional fees the following services are available. Consult [redacted] for fees and check box(es) for additional service(s) requested.
[redacted]w to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

[redacted]Addressed to:
[redacted] Jacobzoon
[redacted]gia-Pacific Corporation
[redacted]est Redwood Avenue
[redacted] Bragg, CA 95437

4. Article Number
685 945

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Always obtain signature of addressee or agent and DATE DELIVERED.

[redacted]re — Addressee

[redacted]re of Agent
Paul LeRoy

[redacted] Delivery OCT 1986

8. Addressee's Address (ONLY if requested and fee paid)

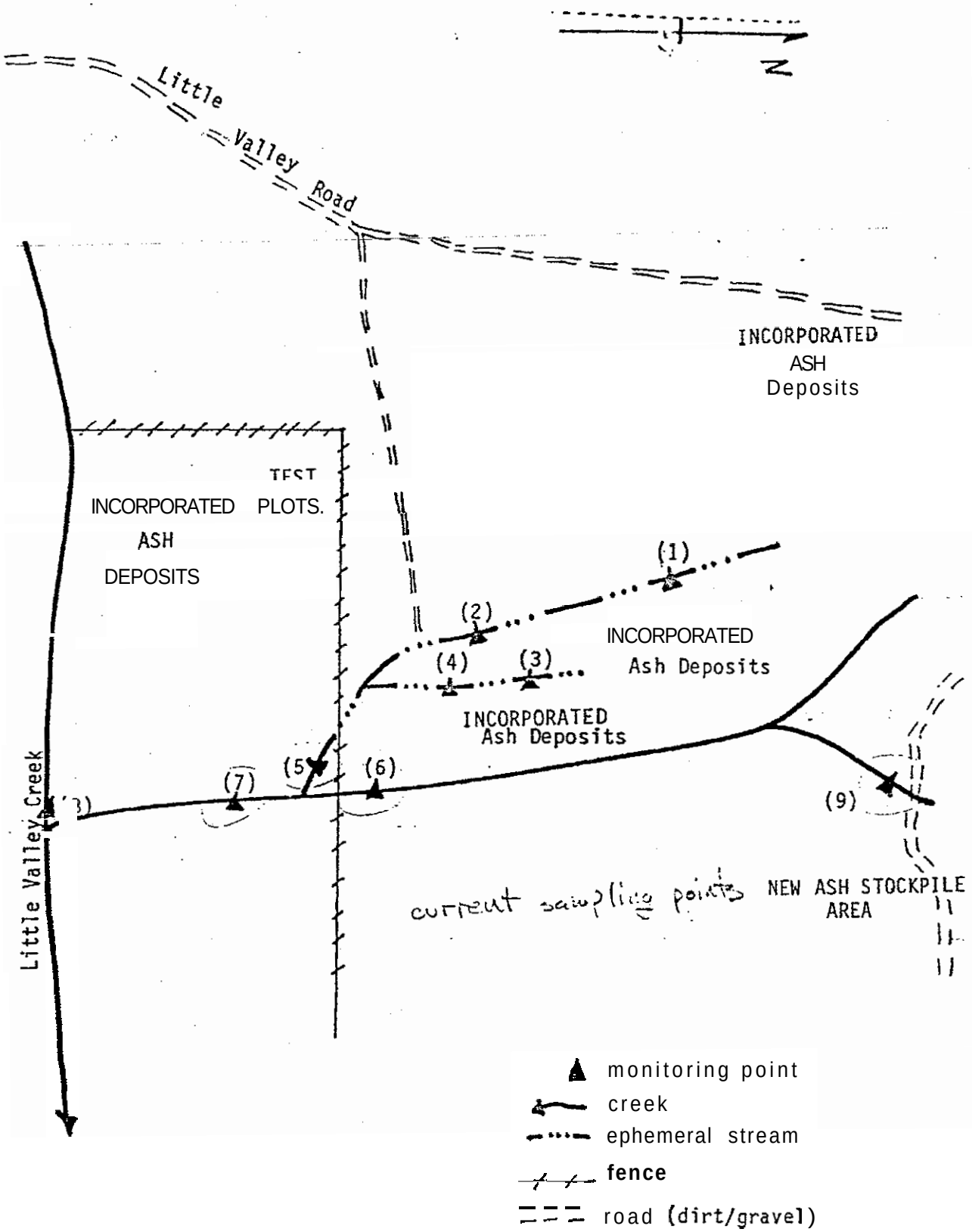
[redacted]811, Feb. 1986 DOMESTIC RETURN RECEIPT

4-446-014

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Don Jacobzoon
Georgia-Pacific Corporation
Street and No. 90 West Redwood Avenue

P 193 925 843



NOT TO SCALE

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

NOV 7 '86

November 5, 1986

☐ BK ___ ☐ KG ___
☐ CI ___ ☐ ___
☑ FR FR ☐ ___
☐ RT ___ ☐ ___
☐ IH ___ ☐ ___
☐ BB ___ ☐ ___
☐ JG ___ ☐ REPLY
☐ ALL STAFF ☐ FILE

Ms. Susan Warner
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

RE: Little Valley Monitoring Requirements

Dear Sue:

From our phone conversation and your letter of October 30, I understand that we now need only sample at Points 5 through 9 (see attached map) during daily rainfall events. However, revised Order 86-3 still states that samples are to be taken on the ephemeral draws, making a total of nine sampling points. Does this provision still apply or did your staff merely forget to delete it?

I have one additional point to clarify. The intermittent stream tributary to Little Valley Creek will probably run during weeks of no rain (as we discussed) once the soil is recharged. Do we do weekly sampling on this stream whenever it is flowing, regardless of rain? My reading of Order 86-3 indicates that we don't, but your comment that you consider this creek to be perennial makes me wonder if your intention is to sample it every week for suspended solids, regardless of rain. This question applies to Little Valley Creek also.

I would appreciate your attention to these points so that we can keep this year's monitoring program on the right track.

Sincerely,

Steven Petrin
Hydrologist and
Environmental Specialist
WESTERN WOOD PRODUCTS MFG
California Wood Products

SP:mm
Enc.

cc: Jack Anderson - Atlanta

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

NOV 13 '86

☐ BK ____ ☐ RG ____
☐ CJ ____ ☐ SWS
☐ TR ____ ☐ ____
☐ RT ____ ☐ ____
☐ JH ____ ☐ ____
☐ BB ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

November 7, 1986

Mr. Benjamin D. Kor
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the October 1986 report for the Georgia-Pacific Soil Amending Project as per revised Monitoring and Reporting Program 86-3.

Sincerely,

Steven Petrin
Hydrologist and
Environmental Specialist
WESTERN WOOD PRODUCTS MFG
California Wood Products

SP:mm
Encl.

cc: Jack Anderson - Atlanta

Ash has been applied and incorporated on an additional .77 acres during the month of November. Due to wet ground conditions, ash incorporation was discontinued after November 18. All subsequent loads of ash were placed in the winter storage area as approved by Sue Warner. Total volume to the winter storage area was 940 yd^3 for the month of November,

Stormwater Runoff Monitoring.

No flow was generated in the ephemeral draws, so no sampling was done in November.

WATER QUALITY
CONTROL BOARD
REGION I

DEC 19 '86

☐ BK NO. ☒ RC3
☐ CJ ____ ☐ ____
☐ FR ____ ☐ ____
☐ RT ____ ☐ ____
☐ JHA ____ ☐ ____
☐ BB ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

NOVEMBER 1986 REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM

Monitoring

Volume of ash deposited by week - Cubic Yards of Ash - deposited at upper field of Area A and winter storage area.

November	02-07	920
	09-14	740
	17-21	880
	24-28	500

Number of Treated Acres (Area A) ≈ 23.24 Acres
Number of Treated Acres (Area W) ≈ 5 Acres

Daily Precipitation Measurements		PPT (Inches)
November	1	0
	2	0
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0
	11	0
	12	0
	13	0
	14	0
	15	0
	16	0
	17	0
	18	0.28
	19	0
	20	0.60
	21	0
	22	0
	23	0
	24	0.05
	25	0
	26	0
	27	0
	28	0.40
	29	0
	30	0

CALIFORNI[illegible] REGIONAL WATER QUALITY CO[illegible]OL BOARD
NORTH COAST REGION

Interoffice Communication

TO: (1) Frank Reichmuth
(2) File:Georgia-Pacific, Fort Bragg

DATE: November 1.3. 1986

FROM: Susan Warne

RE: Inspection of the ash pilot project, Little River.

I inspected the site of ash trials set out by Rod Shippee, Mendocino Count:? Agricultural Extension agent, just nor-th of Little River on the west site of highway 1, on the Spring ranch an October 11, 1986.

Hod Shippee has set out several plots with different ash addition rates, with no incorporation. The lack of incorporation could pose problems on a broad scale, but this test is designed to determine whether no incorporation is feasible from a farmer's perspective. The ash was placed over stubble, which should alleviate some of the blowing problem (the test site is far from any homes, and blown ash, should any occur from the small plots, should not be a problem there).

I received a telephone call yesterday from Tom Estes, a sheep rancher north of Fort Bragg, who has used ash in the past and would like to use it again to help control liver flukes in his sheep (as a pasture amendment, Frank, not ingestion). He would be working with Rod Shippee, and I would need to see the site, but we can probably approve a few case-by-case ash uses, just as we have in the past.

NO WDS INPUT FORMS FILLED OUT — NOT APPROPRIATE TO THIS SITE. SW

November 17, 1986

Steve Petrin, Hydrologist
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Steve:

This letter summarizes our telephone conversation of November 12, 1986, regarding:

1. Sawmill bioassay species: Your letter of November 4, 1986, requested a change in the test species from three-spine stickelbacks to fathead minnows. The fish species for the bioassay was selected based on the discharge to the ocean. Consequently, a marine species capable of surviving in freshwater was selected (three-spine stickleback). Others which could be substituted include those listed under section 810(A)(b) of the sixteenth edition of Standard Methods, such as Striped bass, sheepshead minnow, or flounder. These may be as difficult to obtain as the stickleback. Please note that the fathead minnow would not be an appropriate substitute.

2. Mill Inspection Sheet: Enclosed is a copy of the sawmill checklist form you requested in your November 4 letter. I routinely customize this form to suit the needs of the inspection. Attached is a copy of my last memo detailing my observations for a level B inspection. I will be making a level A inspection of the sawmill quite soon.

3. Little Valley Creek Monitoring Requirements: Your letter of November 5, 1986, requested clarification on sampling periods. No samples need be taken from the perennial streams when no discharge is occurring from the ephemeral streams or from overland flow.

Please feel free to call me with any other questions. I worked closely with your predecessor, and hope to develop a similar working relationship with you. My objective is to resolve any potential problems before they occur or before water quality is threatened. I look forward to working with you and will call you soon to schedule an inspection sometime in December.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

Enclosure

Georgia-Pacific

intracompany memo

to	Rick Horder	location	Atlanta - 11
from	Fred McCaig	location	Atlanta - 9
subject	~~Port Bragg, CA - Dioxin in Wood Ash~~	date	November 19, 1986

Steve Petrin, the new Environmental Supervisor at Port Bragg, CA contacted me with regards to a situation that is brewing in Port Bragq, CA. It appears that a package of information was dropped off at the California Department of Forestry, Region 1 and it is suspected that the information was delivered by Mrs. Ellen Giovannoni of Fort Bragg, CA. The plant believe she may be trying to make a case about dioxin being present in the wood ash that is disposed by the plant.

Apparently, Mrs. Giovannoni is a teacher who is receiving disability benefits for some reason that we are not aware of. In August, 1984, she had a sample of the G-P fly ash sent to California Analytical Lab for analysis, and the results showed a level of 0.24 nanograms/gram of the octa isomer of dioxin. The octa isomer is considered to have a very low toxicity number as opposed to the 2,3,7,8 TCDD.

Apparently, on September 9, 1986, Mrs. Giovannoni, in the company of Kristy Sarconi, Toxic Substance Committee, visited a garden supply firm that is using the Fort Bragg fly ash as a filter for some material. The spent fly ash that had been used for a large number of filterings was the substance that was obtained by the two ladies under the guise of wanting to try it out for a garden mulch or some such excuse. It is this filtering media that was apparently sent to California Analytical Labs for the second test for dioxin and furans. This time, they apparently requested analysis for arsenic and pentachlorophenol as well as dioxins and furans. Again, the results obtained indicated a level of octa isomer of dioxin at 3.7 nanograms per gram.

It appears that there is an effort at Fort Bragg to show that the plant fly ash contains dioxin and furans. Since the only isomer found was octa, this effort may not be pursued any further. However, I think that we all need to be alert to this activity so we can be prepared to deal with anything that arises.

Fred McCaig

G. F. M.

GFM/lwn

Attachment

cc: C. Tolar
B. Zoffmann
A. Bell

GP 09-1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

Interoffice Communication

TO: (1) Frank Reichmuth
(2) Georgia-Pacific, Fort Bragg sawmill

DATE: December 6, 1984

FROM: Susan Warner

RE: Inspection of proposed Estes soil amendment site north of Fort Bragg.

I briefly inspected the Tom Estes property north of Fort Bragg (across from Kem-Gas, about one mile north of town and west of highway 1). Mr. Estes wishes to acquire ash to work into his soil as an amendment to aid in dispursement of clay, and leaching of salts. Estes apparently applied Noyo harbor dredgings to his top soil, causing a salt problem. He also has applied sea urchin wastes to the area, and previously used much ash for 'fill'. I explained to Mr. Estes that ash could not be used as fill, and would not work as fill anyway in the long term since it would decompose. He indicated that he wanted to put it on the top soil, disc it in (he has equipment available), and grow grass pasture.

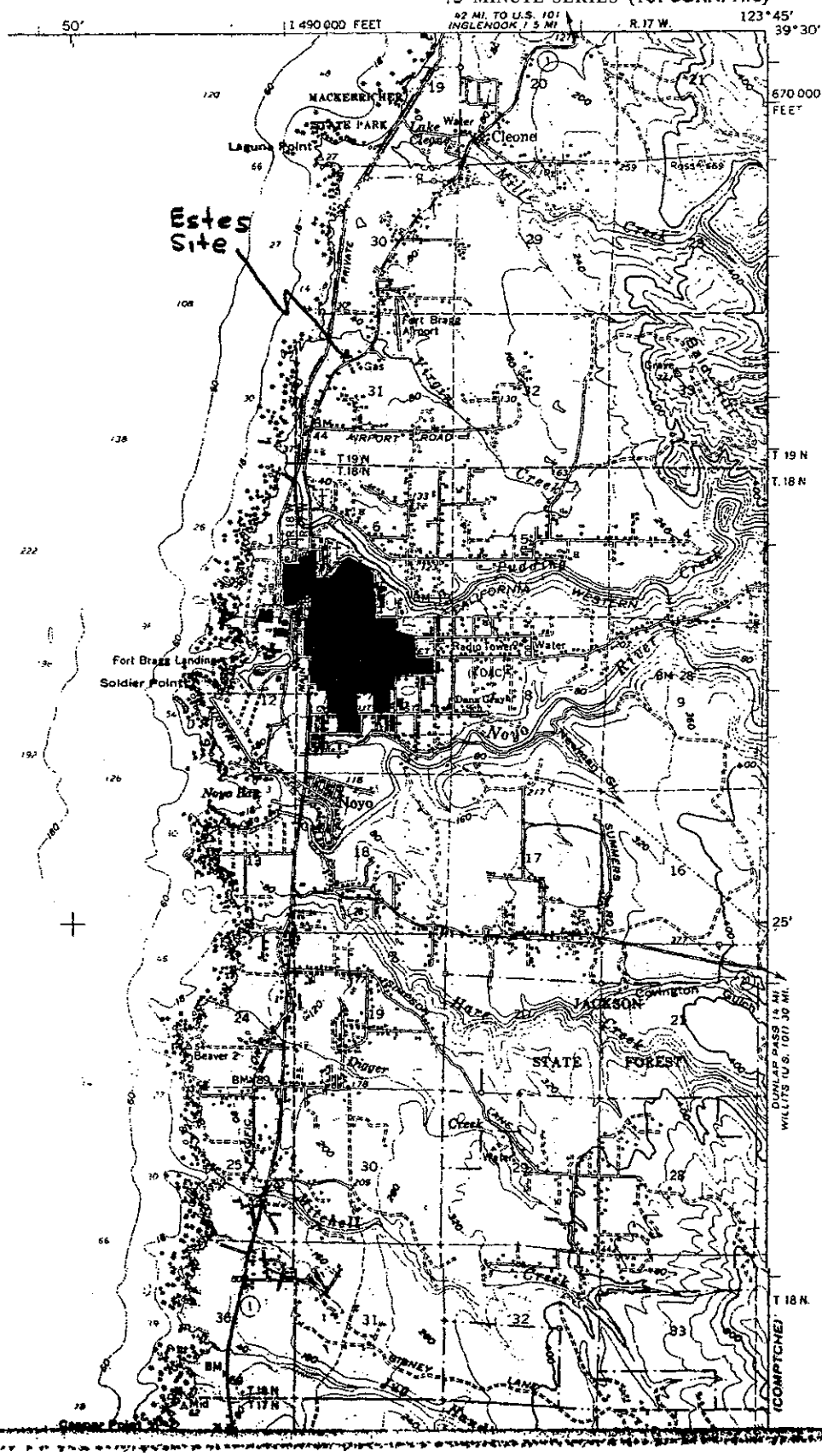
The area slopes generally to the west, with a slight trend toward the south. In the middle of the pasture is a duck pond, used to irrigate the pasture in the winter. The pond is cleaned out from time to time. South of the pasture area and duck pond are two wells. The closest house is a summer cabin on the south property line, next to the pond, and a year-round residence on the southeast property line. Mr. Estes stated that he intends to grade the area to slope toward the duck pond. He indicated that he was aware of the airborne ash problem and would keep the ash wet until he could disc it in. Virgin Creek flows past the property about 300 feet away. I explained that any discharge of ash to Virgin Creek would result in enforcement action by our agency. It is unlikely that incorporated ash would discharge to the Creek.

I told Mr. Estes to put the request in a letter, with assurances on controlling runoff and airborn drift. If he submits an adequate letter, then I recommend approval for a one-time application of ash at the site. I am sending a copy of this memo to the local health department for their review and comment.

cc Ed Bridges

IFORNIA
ER RESOURCES
NO)

FORT BRAGG QUADRANGLE
CALIFORNIA–MENDOCINO CO.
15 MINUTE SERIES (TOPOGRAPHIC)



F. V. Tara Dawn
Tom & Julee Estes
22560 N. HWY 1
FORT BRAGG. CA 95437

DOC. # 578-389
F. & G. # 28019
TEL. 707-964-4661

WATER QUALITY
CONTROL BOARD
REGION 1

DEC 11 '86

☐ BK ☐ RC
☐ CJ ☐ SW
☑ FR FL ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☐ FILE

December 8, 1986

Susan A. Warner
1440 Guerneville Rd., Bldg. F
Santa Rosa, California 95401

Dear Susan;

I am writing this letter in regards to our meeting on December 3, in Port Bragg and our discussion about the possible use of the Georgia Pacific fly-ash as a soil amendment.

After already obtaining approximately 1000 yards of soil dredgings from the harbor I would like to incorporate about forty truck loads of fly-ash into this clay salty soil to help break it down.

As I pointed out to you, I have utilities and implements to incorporate this fly-ash..& once as well as the irrigation and sprinkling system to keep it damp until such time the pasture covers it. There should be no drainage into nearby creeks nor should it pose a problem to any water quality due to our location.

Should the weather allow, I will complete this project in about a month, and if it does not, I'll complete it early in the spring as soon as the soil can be worked. I would appreciate your prompt attention to taking care of the necessary paper work to facilitate this project.

Thank you,

Tom E. Estes

Tom E. Estes

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

WATER QUALITY
~~CONTROL BOARD~~
REGION I

DEC 19 '86

December 17, 1986

CERTIFIED MAIL
P 140 647 498

☐ BK ☐ RC
☐ CJ ☐ ~~[illegible]~~
☑ FR ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☐ FILE

Mr. Benjamin D. Kor
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the November 1986 report for the Georgia-Pacific Soil Amending Project as per revised Monitoring and Reporting Program 86-3.

Sincerely,

Steven Petrin
Environmental Specialist
WESTERN WOOD PRODUCTS MFG
California Wood Products

SP:mm
Encl.

Alpha
Alpha Analytical Laboratories Inc. ▪ 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georeia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 12-19-86
DATE IN LAB 12-24-86
COLLECTED BY Client
SAMPLE TYPE Water

LABORATORY NO. :	6-5976	6-5977	
CLIENT I.D. :	Little Valley # a	Little Valley # 9	
NFR	235	36	mg/L

REC'D DEC 3 1 1986

REC'D DEC 3 1 1986

Alpha
Analytical Laboratories, Inc.

Ernest Turner 12-30-86
LABORATORY DIRECTOR DATE

Alpha
Alpha Analytical Laboratories Inc. ■ 860 Waugh Lane. H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 12-19-86
DATE IN LAB 12-24-86
COLLECTED BY Client
SAMPLE TYPE Water

LABORATORY NO.:	6-5973	6-5974	6-5975	
CLIENT I.D.	Little Valley # 5	Little Valley # 6	Little Valley # 7	
NFR	58	273	43	mg/L

REC'D DEC 31 1986

Alpha
Analytical Laboratories, Inc.

LABORATORY DIRECTOR 12-30-86 DATE

RECD JAN 08 1987

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 12-26-86
DATE IN LAB 1-2-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-0009	7-0010	
CLIENT I.D. :	Little Valley "8"	Little Valley "9"	
NFR	13	8	mg/L

Alpha
Analytical Laboratories, Inc.

1-6-87
LABORATORY DIRECTOR DATE

REC'D JAN 08 1987.

Alpha

Alpha Analytical Laboratories Inc. ▪ 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468.0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 12-26-86
DATE IN LAB 1-2-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-0006	7-0007	7-0008	
CLIENT I.D. :	Little Valley "5"	Little Valley "6"	Little Valley "7"	
NFR	18	5	11	mg/L

Alpha
Analytical Laboratories, Inc.

1-6-87
LABORATORY DIRECTOR DATE

Due to wet ground conditions, no ash was incorporated during December. All loads of ash were placed in the winter storage area as approved by Sue Warner. Total volume to the winter storage area was 3,080 cubic yards during the month of December.

Stormwater Runoff Monitoring

Suspended sediment samples were analyzed by Alpha Analytical Labs in Ukiah; lab sheets are enclosed. The pH samples were tested by G-P personnel (Steve Petrin) and original data is recorded in an operating log at the mill.

LITTLE VALLEY pHs

pt:	5	6	7	8	9
Date					
12/19	6.3	6.6	6.7	6.6	6.7
12/26	6.7	6.8	6.9	6.6	6.8
12/31	6.7	6.9	6.7	6.7	6.8

SUSPENDED SOLIDS mg/l

pt:	5	6	7	8	9
Date					
12/19	58	273	43	235	36
12/26	18	5	11	13	8
12/31*	53	86	112	49	28

*Figures received over the phone from Alpha Analytical Laboratories.

DECEMBER 1986 REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by week		Cubic Yards of Ash	- deposited at the winter storage area.
December	01-06	620	
	08-13	900	
	15-19	660	
	22-27	640	
	29-31	260	

Number of Treated Acres (Area A) ≈ 23.24 Acres
Number of Treated Acres (Area W) ≈ 5 Acres

Daily Precipitation Measurements		PPT (Inches)
December	1	0.8
	2	0.8
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0
	11	0
	12	0.37
	13	0.14
	14	0
	15	0
	16	0
	17	0.73
	18	0.10 (est.)
	19	0.75
	20	0
	21	0.53
	22	0.10
	23	0
	24	0
	25	0.26
	26	0.13
	27	0
	28	0
	29	0
	30	0.39
	31	0.93

Dear Sirs,

I wish to focus your attention upon a matter which troubles me greatly.

There is a school in Bragg named Redwood Elementary. I taught there for many years until 1954, when I became too disabled to teach. I was in good health until the fall of 1983. It was in October of that same year when enormous amounts of fly ash were deposited on our school playground. If you are familiar with fly ash, you know it to be the 'burnt' wood products from a lumber mill's smokestack; it is extremely fine and easily air-borne.

Fort Bragg is a small town, and a windy one at that.

The fly ash blew all over town. We breathed it, brought it inside our homes on our clothing, deposited it in our cars due to the fly ash clinging to our clothing, etc. The fly ash came through open windows and was deposited on walls, floors, ceilings, upholstery, etc.

The fly ash continued to be dumped on our playground until March of 1984, looked at

was rototilled into the school playground; it was being used as "fill", so that the playground would end up more level than before.

I started becoming suspicious about what was in the fly ash in November of 1983. My heart rate and blood pressure felt suddenly become abnormal. I became truly alarmed when my nervous system became coiled tight as a spring. The children were becoming hyperactive, and were coming down with respiratory difficulties and pink eye. Illness throughout the area became rare and some were having unusual difficulties in holding their tempers. "Allergies" were developed by people who had never developed allergies before.

So I took shovel in hand, and filled two plastic bags full of both dirt and fly ash from our playground. California Analytical Laboratories analyzed the mixture, and found it to be in excess of 24 parts per billion of octachlorodibenzo-dioxin present. I wrote and phoned various agencies, who told me there

was nothing to be alarmed about.

But I was the one who could hear the fire sirens going off all summer — far more so than they had ever done before. When I managed to get copies of the Fire Dept's yearly report, my suspicions were confirmed. The Fire Dept. showed a 50% increase in calls for resuscitation since the year 1982. That signified to me that other people were having heart problems, too, since they laying down of the fly ash.

I then contacted Kristie Larson, the leader of our local environmental organization, "The Greens". Together, we collected a second sample of fly ash — not from the playground this time, but the pure product from the locale where the fly ash had originally come.

This time, California Analytical Labs found the level of octachlorodibenzo-dioxin to be 3.7. That level is dangerous, according to some dioxin "experts", or not dangerous, according to others.

To this date, no agency has come out to Fort Bragg to investigate the problem. That is an area of major concern to me. Upon what kind of evidence are the statistics for octachlorodibenzo-dioxin's safety or danger being based ???

Number two area of concern:

During dioxin-contaminated herbicides are being sucked into the conifers, just as they are into the hardwoods. The difference is that the hardwoods die and the conifers don't. If so, wood products which come from herbicidally treated trees are also going to contain dioxin.

Just two weeks ago, one grocery store in San Francisco reported that its cashiers were becoming alarmingly ill due to the constant handling of grocery bags; it was reported that the illness was due to the chemicals in the grocery bag's paper.

I'm sure you would have no problems listing other products made of wood — including babies' disposal diapers,

newspapers, books, and the check you take home each month. And, since dioxins are non-biodegradable, that means the problem gets worse every year.

At what point, do you suppose, the federal and state agencies are going to realize that using dioxins ultimately will not save money, either because:

1. The consumers are dead
2. The consumers are sick enough, but not too disabled, to sue. Especially in a sue-happy America.

I hope you can help this nation, gentlemen, in whatever good way you can — such as helping to outlaw the use of herbicides.

Sincerely yours,

Ellie Cronkron
3251 Lumi Rd.
Fort Bragg, Calif.
95437

Phones:
(707) 964-5172
(707) 785-2649

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

INSPECTION COVER SHEET

TO: (Senior Engineer) FCR

Dennis Salisbury (for WDS computer input) DLS

File - GP, Ash

FROM: (Inspector) Susan Warner

WDS FACILITY ID NO.: 1B85030RMEN

FACILITY NAME: Georgia-Pacific - Fort Bragg Sawmill

WAS THIS AN EPA INSPECTION? (Y/N): N (append form 3560-3 if Yes)

WAS A BIOASSAY SAMPLE TAKEN?: STATIC or FLOW-THROUGH N

DATE OF INSPECTION: 12/30/96 TIME: 10:00 INSPECTOR'S INITIALS: SAW

FACILITY EVALUATION: IN COMPLIANCE? Y
VIOLATION? (attach WDS violations input form)

SHORT INSPECTION COMMENT:
in-compliance

TYPE OF INSPECTION:
1 - 'A' type compliance inspection
2 - 'B' type compliance inspection
3 - follow-up for non-compliance
4 - follow-up for enforcement
5 - complaint investigation
6 - pre-requirement inspection
7 - miscellaneous inspection

INSPECTING AGENCY: STATE FEDERAL (EPA) JOINT STATE/FEDERAL

SIGNATURE: Sawarner

Attach inspection narrative, sampling results, map of facility, lumbermill checklist, and/or underground tank evaluation as appropriate.

① CC: FRED McCAIG
~~DOUG DUTTON~~ 2/24/87
~~RICK HARDER~~
② FILE THIS "ORIGINAL" IN: FT BRASS / S.W.

Dear Sirs,

I recently sent you a packet of information concerning the fly ash problem here in Fort Brass. In the accompanying letter, I may have made one or all of the following three mistakes:

1. I may have told you that Norm Klujian works for Illinois' E.P.A. He doesn't. He is the fly ash expert for Ohio's E.P.A. That I could have made such a mistake profoundly disturbs me, for Norm is too important a man to make such a mistake about that mistake must throw a shadow of doubt over the

veracity of the rest I told you, and that was the last thing I wanted.

2. I may have quoted to you that the level of arsenic found was > 3.8 p.p.m. The truth is, the level of arsenic found was > 3.4 p.p.m. Thank goodness the statistics from California Analytical Laboratories corrected for that mistake.

3. I am almost positive that I sent you a two page copy of an article from the San Francisco Chronicle, and that I [illegible] the end of the article over its beginning.

You have my deepest apologies for those mistakes,

Sincerely yours,
Ellie Giannoni

F

December 31, 1986

Tom Estes
22560 North Highway 1
Fort Bragg, CA 95437

Dear Mr. Estes:

I received your letter proposing to use Georgia-Pacific fly ash on your farm. I inspected the area of the ash soil amendment use, and discussed your plans with you, pointing out the need to control the ash use.

You stated that you intend to keep the ash moist, and will incorporate it into the soil promptly. You must avoid erosion of ash and discharge to waters of the State.

I have concluded from my review of your proposal that the project could go forward with minimal or no water quality impacts. Accordingly, waste discharge requirements and associated fees will be waived for the project. However, you should submit a brief letter report at the conclusion of the project to let us know that you have finished and are no longer accepting fly ash wastes. Please call me if you have any questions in this matter.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

SAW:mkh

cc: Ed Bridges, Mendocino County Health Department, Fort Bragg

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

Interoffice Communication

TO: (1) Frank Reichmuth FR
(2) File: G-P, ash

DATE: January 9, 1987

FROM: Susan Warner

RE: Inspection of fly ash soil amendment use Dec 30, 1986

The Little Valley site continues to meet requirements. No discharge was occurring, nor was a threatened discharge evident. I inspected both the amended area and the stockpiled areas with Steve Petrin, Dow Jacobzoon, and Mendocino Farm Advisor Rod Shippey. The test plot areas at Little Valley show good response to ash amendment at moderate rates of application. High rates appear to impede growth,

The Allen Spring site does not show the same response as yet, probably due to the lateness of ash application. Further growth should occur in the spring.

Jacobzoon mentioned use of the McGuire Ranch site for soil amendment purposes. I indicated a new report of waste discharge would be required for that site.

DLS

cc Candi Parker

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

January 14, 1987

CERTIFIED MAIL
P 236 628 652

BK ___ RC ___
CI ___ ___
CJ ___ ___
& Xu ___
RT ___ ___
JH ___ ___
BB ___ ___
JG ___ REPLY
ALL STAFF FILE

Mr. Benjamin D. Kor
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the December 1986 report for the Georqia-Pacific Soil Amending Project as per revised Monitoring and Reporting Program 86-3.

Sincerely,

Steven Petrin
Environmental Specialist
WESTERN WOOD PRODUCTS MFG
California Wood Products

SP:mm
Encl.

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georeia Pacific
ADDRESS 90 West Redwood Avenue
Fort Braee, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 12-19-86
DATE IN LAB 12-24-86
COLLECTED BY Client
SAMPLE TYPE Water

LABORATORY NO.:	6-5976	6-5977	
CLIENT I.D. :	Little Valley # 8	Little Valley # 9	
NFR	235	36	mg/L

REC'D DEC 3 1 1986

REC'D DEC 3 1 1986

Alpha
Analytical Laboratories, Inc.

12-30-86
LABORATORY DIRECTOR DATE

Alpha
Alpha Analytical Laboratories Inc. ▪ 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 12-19-86
DATE IN LAB 12-24-86
COLLECTED BY Client
SAMPLE TYPE Water

LABORATORY NO.:	6-5973	6-5974	6-5975	
CLIENT I.D.	Little Valley # 5	Little Valley # 6	Little Valley # 7	
NHR	58	273	43	mg/L

REC'D DEC 31 1986

Alpha
Analytical Laboratories, Inc.

LABORATORY DIRECTOR 12-30-86 DATE

RECD JAN 08 1987

Alpha

Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Braaa. CA 95437
ATTN: Steve Petrin

DATE COLLECTED 12-26-86
DATE IN LAB 1-2-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-0009	7-0010	
CLIENT I.D.	Little Valley "8"	Little Valley "9"	
NFR	13	8	mg/L

Alpha
Analytical Laboratories, Inc.

LABORATORY DIRECTOR 1-6-87 DATE

REC'D JAN 0 8 1987.

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georeia Pacific
ADDRESS 90 West Redwood Avenue
Fort Braze. CA 95437
ATTN: Steve Petrin

DATE COLLECTED 12-26-86
DATE IN LAB 1-2-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-0006	7-0007	7-0008	
CLIENT I.D. :	Little Valley "5"	Little Valley "6"	Little Valley "7"	
NFR	18	5	11	mg/L

Alpha
Analytical Laboratories. Inc.

1-6-87
LABORATORY DIRECTOR DATE

Due to wet ground conditions, no ash was incorporated during December. All loads of ash were placed in the winter storage area as approved by Sue Warner. Total volume to the winter storage area was 3,080 cubic yards during the month of December.

Stormwater Runoff Monitoring

Suspended sediment samples were analyzed by Alpha Analytical Labs in Ukiah; lab sheets are enclosed. The pH samples were tested by G-P personnel (Steve Petrin) and original data is recorded in an operating log at the mill.

LITTLE VALLEY pHs

pt:	5	6	7	8	9
Date					
12/19	6.3	6.6	6.7	6.6	6.7
12/26	6.7	6.8	6.9	6.6	6.8
12/31	6.7	6.9	6.7	6.7	6.8

SUSPENDED SOLIDS mg/l

pt:	5	6	7	8	9
Date					
12/19	58	273	43	235	36
12/26	18	5	11	13	8
12/31*	53	86	112	49	28

*Figures received over the phone from Alpha Analytical Laboratories.

DECEMBER 1986 REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by week		Cubic Yards of Ash - deposited at the winter storage area.
December	01-06	620
	08-13	900
	15-19	660
	22-27	640
	29-31	260

Number of Treated Acres (Area A)	≈ 23.24 Acres
Number of Treated Acres (Area W)	≈ 5 Acres

Daily Precipitation Measurements		PPT (Inches)
December	1	0.8
	2	0.8
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0
	11	0
	12	0.37
	13	0.14
	14	0
	15	0
	16	0
	17	0.73
	18	0.10 (est.)
	19	0.75
	20	0
	21	0.53
	22	0.10
	23	0
	24	0
	25	0.26
	26	0.13
	27	0
	28	0
	29	0
	30	0.39
	31	0.93

STATE OF CALIFORNIA
GEORGE DEUKMEJIAN, Gover

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION
40 GUERNEVILLE ROAD
SANTA ROSA, CA 95401
Phone: (707) 576-2220

January 20, 1987

RECD JAN 21 1987

Ellie Giovannoni
31251 Turner Road
Fort Bragg, CA 95437

Dear Ms. Giovannoni:

Thank you for your letters received in our office on December 23 and 31, 1986. I appreciate your concern with the Georgia-Pacific fly ash generation and disposal processes. We received numerous complaints concerning the nuisance *that* was created by wind-blown ash from inappropriate disposal of these wastes. Due to the nuisance generated, this agency and others took enforcement action concerning the ash disposal. The Regional Board has now developed a waste control program with Georgia-Pacific to ensure proper handling of the ash. A copy of the permit issued by this agency for soil amendment use of the ash is enclosed as Attachment 1.

Your letter states several concerns over the possible dioxin contamination of the ash, and includes some analytical reports from Cal/Analytical Laboratories. As your letter states, the level of octachlorodibenzodioxin reported (0.23 to 3.7 ppb) is quite low. Given the current ash generation practices at Georgia-Pacific, I do not believe that dioxin contamination of the fly ash is likely to occur. Nonetheless, I have sent a copy of your letter to the county and state health departments, who have jurisdiction over public health threats.

I have also enclosed copies of a letter sent by me to Kristy Sarconi, which may contain information of further use to you. In addition, I have enclosed an article pertinent to plant uptake of dioxins. You should be aware, however, that it has been many years since the herbicides 2,4,5-T, silvex, or 2,4-D (known to be contaminated with various dioxins) have been aerially sprayed on Mendocino County forestlands. Other herbicides have been and continue to be used for brush control in the county, but none are known to be contaminated with any dioxins.

I hope that this letter has answered some of your concerns. Please let me know if I may be of further assistance.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

SAW:mkh

Enclosures

cc: Jerry Davis
Ed Bridges
Steve Petrin

STATE OF CALIFORNIA
GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION
1440 GUERNEVILLE ROAD
NTA ROSA, CA 95401
one: (707) 576-2220

January 21, 1987

Gerald Davis
Mendocino County Environmental Health Director
Mendocino County Department of Health
Courthouse
Ukiah, CA 95482

Dear Jerry:

I received the enclosed letters from Ms. Ellie Giovannoni last month, and wish to bring them to your attention. You will note that Ms. Giovannoni and/or Kristy Sarconi obtained a second sample of the alleged ash deposition at Redwood Elementary School for analysis by Cal/Analytical laboratories. This second sample also indicates the presence of octachlorodibenzodioxin. As I have mentioned to you before, I would not expect the presence of dioxins in Georgia-Pacific's fly ash based on thier current ash generation practices. The Giovannoni samples were again collected in an unknown manner from an unknown area of the school yard in an unknown container (although presumably the containers were the plastic bags mentioned in Ben Buechler's letter; I do not believe that plastic would be an appropriate sample collection container). This, of course, compromises the value of the data.

Given these data, however, further investigation may be needed. The State Department of Health Services classified Georgia-Pacific's fly ash as "non-hazardous" in 1983 and in 1985. However, I am sending them a copy of the Giovannoni letter, and will ask them to make further recommendations to us in light of this recent information. I would also welcome your comments and recommendations.

Please call me if you have any questions.

Sincerely,

ORIGINAL SIGNED BY

Susan A. Warner
Associate Engineering Geologist

SAW:mkh

Enclosures

cc: Ellie Giovannoni
Steve Petrin

STATE OF CALIFORNIA

GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION

1440 GUERNEVILLE ROAD
SANTA ROSA, CA 95401
Phone: (707) 576-2220

January 21, 1987

David J. Leu, Ph.D., Chief
Alternative Technology and Policy
Development Section
Toxic Substances Control Division
State Department of Health Services
1219 K Street
Sacramento, CA 95814

Dear Dr. Leu:

Enclosed is background material and recent correspondence from a complainant on the possible octachlordibenzodioxin contamination of fly ash generated by a Georgia-Pacific sawmill power plant in Fort Bragg, Mendocino County. I would appreciate any guidance or information you may have which would help resolve this problem. Specifically, at least two questions need clarification:

1. Has fly ash been analyzed in California for dioxin contaminants?

2. Does the alleged ash contamination warrant further determination by your agency of the waste status of this particular ash?

In addition, if another section of your agency should be involved to determine whether a public health hazard potentially exists, then please so indicate. Please do not hesitate to call me if you require further information.

Sincerely,

ORIGINAL SIGNED BY

Susan Warner
Associate Engineering Geologist

SAW:mkh

Enclosure

cc: Jerry Davis
Ellie Giovannoni
Steve Petrin

Jan. 27, 1987

Dear Sue Warner,

Thank you for your immediate response. Some of the information went way over my head, but am glad you included it.

If you will remember, you sent me three packets of information, with three different cover-letters. One cover-letter was addressed to Dr. Lee, one to Gerald Davis, and one to me. I don't know if it was just a clerical error that happened in the packet I received, but it looks as if Dr. Lee received data from the first fly ash sampling, alone, which was done back in 1984. (The results of the second fly ash sampling, taken by Kristi and me in 1986, were sent along by you to Gerald Davis). I have decided to try to solve the problem by sending Dr. Lee a copy of a letter I wrote to "60 Minutes"; it contains data from the first and second samplings.

To try to help clear matters up for you, the following is data on how both the first and second samples were obtained:

The first time, I went to the school playground, alone. A person

who wishes to remain anonymous, strolled by and offered to help me. He held plastic bags open while I shoveled the fly ash and soil mixture into them. I didn't dig a hole in the playground, but just scraped my shovel along the playground's surface. The contents of the plastic bags were then put in shoeboxes, and mailed off to Cal Labs. The site from which I took the samples was approximately 1/3 of the way from the school's eastern border, and fairly close to the northern perimeter of the playground.

2. The second time samples were taken, Kristie and I took them together. We were <u>not</u> on the school playground, but on the site where the school's fly ash had originally come. We drove half-way up a huge pile of fly ash. This time the fly ash containers (i.e. plastic bags) were already inside cardboard cartons. The fly ash was then shoveled into the plastic bags. When Kristie and I got back to my house, we transfered the plastic bags into new cardboard cartons, that no one (hopefully) would come into contact with the fly ash

on the outside of the original cardboard boxes.

The antiquities of the English language being what they are, I could not determine whether you thought the second sample of fly ash came from Redwood Elementary's playground or not. It didn't.

And, of course, the reason we are asking you to make an investigation is because ~~we~~ we are amateurs in the field of gathering such samples.

In case you have the feeling that there was something "strange" about what I told you, I fear it is this: If I, knowing that fly ash was dangerous to my health, would deliberately expose myself to large quantities of it again, why would I take such a risk again? The answer is: because no one else volunteered to do it. I don't believe I ever told you that the chemical composition of fly ash, dating back to 1984, gives me an awful cough. And bronchitis went to it,

and the cough becomes strong enough to break a rib. I broke one or more ribs 2 years ago, and am sitting here now, dealing with another broken rib, due to having inhaled fly ash, and then having caught bronchitis.

I hope I have answered your questions.

I am sincerely grateful for the information you sent me, and especially for the 1985 results from Multi-Tech on the analysis of material from Georgia-Pacific. To my knowledge, Inc, Multi-Tech has not the rare and expensive equipment to deal with dioxins. Again, to my knowledge, only Al Labs has that equipment in California.

I know money is short for environmental studies. I also understand that money may be quite short for the study of dioxins, since so many Vietnam Veterans claim to have been injured by Agent Orange, and have filed lawsuits to compensate for damages. You can't do better than your best, under such circumstances.

My sincere best to you,
Sue,

Ellie Giovannoni
31251 Turner Rd.
Fort Bragg, Calif.
95437
Phones: (707) 964-5172
(707) 785-2649

P.S. If I were you, I'd wash my hands after reading this letter. Whatever "bug" it is that I have is awfully hard to shake, and this letter may be germy.

STATE OF CALIFORNIA—HEALTH AND WELF[illegible]AGENCY

GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF HEALTH SERVICES
714/744 P STREET
SACRAMENTO, CA 95814

(916) 324-1807

CONTROL BOARD

FEB 2 '87

Ms. Susan Warner
Associate Engineering Geologist
California Regional Water Quality Control Board
North Coast Region
1440 Guerneville Road
Santa Rosa, CA 9540.1

Dear Ms. Warner:

Thank you for your letter of January 21, 1987 and the items appended thereto concerning octachlorodibenzodioxin (OCDD) contamination in fly ash generated by the Georgia-Pacific Plant in Fort Bragg, California.

Your letter poses two questions. First, you ask whether fly ash has been analyzed in California for dioxin contaminants. There have, in fact, been studies on the dioxin content of fly ash in California, however, it must be pointed out that dioxin concentrations in fly ash vary with the type of incinerator design, feedstocks used, details of operation, and a variety of other factors. There have been many studies here and abroad which have demonstrated the occurrence of dioxins in fly ash from various types of incinerators. Studies have also shown the occurrence of dioxins in ash resulting from wood combustion (see Isomer-Specific Determination of Chlorinated Dioxins for Assessment of Formation of Potential Environmental Emission from Wood Combustion; Nestrick and Lamparski. Analytical Chemistry,1982. 54:2292-2299). The levels of 2,3,7,8 - TCDD found in these studies are generally very low; much lower than the regulatory limit of 0.01 parts per million (ppm). The maximum detected concentration of 2,3,7,8 - TCDD in the Nestrick and Lamparski study was 200 parts per trillion (or 0.0002 ppm). Samples collected in the Western region of the United States contained even lower concentrations of 2,3,7,8 - TCDD. None of the 2,3,7,8 isomer was detected in the ash samples collected by Ms. Giovannoni. There are 75 different possible isomers of dioxin. Some of these are extremely toxic while others, like OCDD, are relatively nontoxic.

This brings me to your second question which asks; "Does the alleged ash contamination warrant further determination by (DHS) of the waste status of this particular ash?" All of the data presently available to us suggests that OCDD is relatively nontoxic by comparison to the 2,3,7,8 isomer (TCDD). OCDD is thought to be noncarcinogenic. (Technical Support Document: Report on Chlorinated Dioxins and Dibenzofurans, Part B - Health Effects of Chlorinated Dioxins and Dibenzofurans, Department of Health Services, February 1986). This conclusion is based in part on the findings of

independent researchers whose studies have led them to conclude that isomers with 1, 2, 3, or 8 chlorines are relatively nontoxic compared with those with 4, 5, 6, or 7 (Choudhary, Keith, Rappe. Chlorinated Dioxins and Dibenzofurans in the Total Environment, 1983). In a study which compared the relative acute toxicity of OCDD and other isomers to 2,3,7,8-TCDD it was reported that the oral LD50 for OCDD in mice was greater than 4,000,000 mg/Kg. For rats the oral LD50 was greater than 1,000,000 mg/Kg. By comparison, the acute oral LD50 for 2,3,7,8-TCDD in the mouse ranged from 114 to 284 mg/Kg, and in the rat from 22 to 45 mg/Kg body weight. In studies measuring enzymatic induction, OCDD was found to be inactive for AHH (aryl hydrocarbon hydroxylase) and ALA (delta-amimolevulinic acid synthetase), (Kociba and Cabey. Comparative Toxicity and Biological Activity of Chlorinated Dibenzo-p-dioxins and Furans Relative to 2,3,7,8-TCDD. Chemosphere 1985; 14:649-660). Other studies have suggested that OCDD is poorly accumulated due to its extreme hydrophobicity and poor absorption as a result of steric factors. These facts, when collectively considered, do not indicate a need for further investigation or concern with this particular ash at the present time.

We appreciate your interest in this matter and hope that this response will be helpful to you in addressing the concerns expressed by Ms. Giovannoni. If you have any other questions or need additional information, please do not hesitate to contact me, or you may wish to contact Mr. Norman Riley (916/324-1807) of my staff who will be happy to assist you.

Sincerely,

David J. Leu

David J. Leu, Ph.D., Chief
Alternative Technology Section
Toxic Substances Control Division

cc: Ms. Ellie Giovannoni
31251 Turner Road
Fort Bragg, CA 95437

DJL:NR:nr

STATE OF CALIFORNIA

GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION

1440 GUERNEVILLE ROAD
NTA ROSA, CA 95401
none: (707) 576-2220

February 4, 1987

REC'D FEB 05 1987

Steve Petrin
Forest Hydrologist
Georgia-Pacific Corporation
90 West Redwood, Avenue
Fort Bragg, CA 95437

Dear Mr. Petrin:

As you are aware, we have received several complaints concerning potential dioxin contamination of the woodwaste ash being generated at the Georgia-Pacific sawmill in Fort Bragg. Since this ash is being considered under Subchapter 15 as a decomposable waste suitable for soil amendment use, then it is essential that no polychlorodibenzodioxin (PCDD) or polychlorodibenzofuran (PCDF) contaminants be present in this waste. Accordingly, you will need to arrange to sample and anaylze freshly generated ash from the power plant for the PCDDs and PCDFs. Please submit by February 28, 1987, to the Regional Board staff for approval, pursuant to Section 13267(b) of the California Water Code, a technical report describing the appropriate sampling plan and schedule for the analyses.

Please call me if you have any questions in this matter.

Sincerely,

Frank Reichert for

Susan A. Warner
Associate Engineering Geologist

SAW:mkh

cc: Gerald Davis
Ellie Giovannoni

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 91437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

FEB 17 '87

February 12, 1987

CERTIFIED MAIL
P 236 628 674
Return Receipt Requested

☐ BK ____ ☐ RG ____
☐ CI ____ ☐ SW
☐ FR ____ ☐ ____
☐ RT ____ ☐ ____
☐ JH ____ ☐ ____
☐ BB ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

Mr. Benjamin D. Kor
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the January 1987 report for the Georgia-Pacific Soil Amending Project as per revised Monitoring and Reporting Program 86-3.

Sincerely,

Steven Petrin
Director, Environmental
Health and Safety
WESTERN WOOD PRODUCTS MFG
California Wood Products

SP:sp
Encl.

RE'D FEB 09 1987

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane. H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 1-24-87
DATE IN LAB 1-27-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-0456	7-0457	
CLIENT I.D. :	Little Valley # 8	Little Valley # 9	
COD	49	33	mg/L
NFR	27	7	mg/L

Alpha
Analytical Laboratories, Inc.

2-4-87
LABORATORY DIRECTOR DATE

REC'D FEB 09 1987

Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg CA 95437
ATTN: Steve Petrin

DATE COLLECTED 1-24-87
DATE IN LAB 1-27-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-0453	7-0454	7-0455	
CLIENT I.D. :	Little Valley #5	Little Valley #6	Little Valley #7	
COD	26	19	22	mg/L
NFR	17	7	12	mg/L

Alpha
Analytical Laboratories, Inc.

2-4-87
LABORATORY DIRECTOR DATE

Due to wet ground conditions, no ash was incorporated during January. All loads of ash were placed in the winter storage area as approved by Sue Warner. Total volume to the winter storage area was 3,480 cubic yards during the month of January.

Stormwatet- Runoff Monitoring

Suspended sediment and COD samples were analyzed by Alpha Analytical Labs in Ukiah; lab sheets are enclosed. The pH samples were tested by G-P personnel (Steve Petrin) and original data is recorded in an operating log at the mill.

LITTLE VALLEY pHs

pt:	5	6	Z	8	9
Date					
1/1	6.6	6.5	6.6	6.6	6.5
1/3	7.0	6.9	7.0	6.6	6.8
1/24	6.8	6.7	6.7	6.5	6.5
1/28	7.0	7.1	7.1	6.9	7.1

SUSPENDED SOLIDS mg/l

pt:	5	6	7	8	9
Date					
1/24	17	7	12	27	7
1/28*	6	18	27	7	2

COD (mg/L)

pt:	5	6	7	8	9
Date					
1/24	26	19	22	49	33

*Figures received over the phone from Alpha Analytical Laboratories.

January 1987 REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by week		Cubic Yards of Ash - deposited at the winter storage area.
January	01-03	200
	04-10	620
	11-17	780
	18-24	900
	25-31	980

Number of Treated Acres (Area A)	23.24 Acres
Number of Treated Acres (Area W)	5 Acres

Daily Precipitation Measurements		PPT (Inches)
January	1	0.48
	2	1.40
	3	1.04
	4	0
	5	0
	6	0.06
	7	0
	8	0.15
	9	0
	10	0
	11	0.30
	12	0.05
	13	0
	14	0
	15	0
	16	0
	17	0
	18	0
	19	0
	20	0
	21	0
	22	0.53
	23	1.33
	24	0.12
	25	0.13
	26	0
	27	1.01
	28	0.09
	29	0.68
	30	0
	31	0

Cooperative Extension

UNIVERSITY OF CALIFORNIA MENDOCINO COUNTY

COUNTY AGRICULTURAL CENTER
579 LOW GAP ROAD.
UKIAH. CA 95482 .

707-463-4495

Februarv 13. 1987

QUARTERLY NARRATIVE REPORT - Roderick A. Shippey
Livestock Advisor

FLY ASH PLOTS EXPAND WITH SUCCESS

The California Water Ouality Control Board's field person. Sue Warner. gave us the OK to put out two more fly ash plots. These were topical applications of Georgia Pacific's Fort Bragg fly ash to be used on the coastal bench soils.

Rollie Myer and I put two replicated test plots on established aub clover and perennial grass pastures. The rates in these tests ran 4-8-16-64 tons per acre, The reason for the topical tests was to monitor the potential movement of the fines by the prevailing winds. The measurement to be by establishing the forage reactions to the ash nutienta. To date; there has been no blowing of ash. There was a four inch stubble on the pasture when the applications were made which allowed the ash to filter down and be protected.

The original fly ash test was 64-128-256-512-1024 ton6 per acre and was adjusted to oven dry weights because there was 25% moisture in the ash. The corrected amount6 wero 48-96-192-384-768 tons per acre. The ash was spread. disk plowed down. dieked and dragged before it was seeded to sub clover. salina clover. ryegrass and Palestine orchardgrass. The present growth pattern in the incorporated plot shows the best growth in the 384 ton/acre cells.

In the two topical application plots. the 32 tons/acre cells are looking the best.

The reason for the plots was that California Water Quality Control Board threatened to close down the Georgia Pacific co-generation plant at the sawmill if Georgia Pacific couldn't find a way to dispose of the 200 cubic yards of fly ash the boilers were producing daily.

The project now is working with Georgia Pacific disposing of 'their daily ash safely, ferilizing their soils and looking at May when Water Quality has said they would remove their Clean-Up and, Dispose restrictions on allowing ranchers to use fly ash on coastal pastures.

I will have harvest data in May from all the plots.

FIVE WIRE DEER FENCE IS WORKING!

I built a 5 wire energized fence around the Georgia Pacific fly ash plot at Fort Bragg. It is six feet high and powered by a deep cycle automotive battery. The battery is recharged daily by. a 10 watt solar panel. The test plot is checked every two weeks for clover growth and potential deer damage. Not a single hoof print insidethe fence. but lots of tracks outside. The cost per foot to build was 80.43 for materials plus $0.45 for labor which makes it a cost per rile of $4646.40. The other plus for Georgia Pacific is their tree plantation8 can be protected in the clear cut areas where deer naturally migrate after logging. This fence controls cattle and may be useful on other large mammals. I suspect that two bottom wires at four inch spacing8 will control rabbits and raccoons.

A POX UPON THE TULE ELK

.The California Department of Fish and Game released Tule Elk in Lake County starting in 1978. These elk found Potter Valley soon afterwards and lately, my fertilizer plots on Potter Valley bench pastures. The elk don't aiways make it all the way over the ranchers fences. They squash them. root under them or squeeze through. My fertilizer plot fences have been trashed which prompted a letter to State Fish and Game Department secretary, Jack Parnell. in Sacramento. Fish and Game have concured that the elk are a problem, and that they are willing to fund an electric fence for the test area. I'll build a fence similar to the Georgia Pacific deer fence. a five wire energized hi-tensile structure. Another plus for this new fencing technique.

POX NUMBER 2--GOPHERS AND WEEDS IN MY ALFALFA VARIETY PLOTS

Since Bill Brooks retired last year. I am now the agonomist in the barrel. Thanks to Verne Marble. I was able to start two alfalfa variety test plots on heavy-wet Covelo and Potter Valley soils.

Being new at fall planting alfalfa. our cooperators and I planted. fertilized and waited for our newly genetically engineered alfalfa plants to emerge victorious over wet-heavy soils. The first fall rains started our new friends. and then came the gophers and weeds.

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF HEALTH SERVICES
714/744 P STREET
SACRAMENTO, CA 95814
(916) 324-1807

WATER QUALITY
CONTROL BOARD
REGION 1

FEB 27 '87

February 24, 1987

☐ BX ☐
☐ CJ ☐
☑ FR HL ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☒ FILE GP - Ft Bragg

Ms. Ellie Giovannoni
31251 Turner Road
Fort Bragg, CA 95437

Dear Ms. Giovannoni:

I have received your letter dated January 28, 1987 as well as a copy of your January 18, 1987 letter to 60 Minutes. I have read your letters carefully, and I am sorry to learn of your failing health and the frustration which you have experienced in seeking an explanation for your problems. Unfortunately, I cannot tell you the precise cause of your ailment: however, it is my carefully considered opinion as well as the view of technical experts on my staff that your problems are probably not due to octachlorodibenzodioxin (OCDD) exposure.

There are a number of facts which support this conclusion, some of which are outlined in the attached copy of my letter to Ms. Susan Warner of the Regional Water Quality Control Board. Additionally, there are a number of points in your letter that I wish to address. Hopefully, this will further clarify the issue for you and ease your concerns regarding OCDD.

1. You are correct in your statement that sawdust alone can cause respiratory problems. Some individuals are especially sensitive to the inhalation of fine particles which occur in dust, smoke, haze, soot, fumes, and smog.

2. The incident reports enclosed with your letter do not show a 50 percent increase in resuscitation calls between 1982 (74 calls total, 41 city) and 1984 (83 calls total, 59 city). The observed total increase of 13 percent may be attributable to any number of factors. One would have to examine many more years worth of statistics in order to determine whether these increases are significant, and would also have to examine vital statistics, and other sources of information at length in order to determine whether these increases are truly related to the burning of wood at the Georgia Pacific Plant. There are many possible explanations for the observed increases, and it would be difficult to show that the increased frequency of resuscitation calls is related to the fly ash.

3. The 1 ppb figure cited in your letter is derived from a 1983 study conducted by the United States Department of Health and Human Services, Public Health Service, Center for Disease Control, Center for Environmental Health, which investigated the risk associated with exposure to 2,3,7,8-TCDD in soil. These researchers concluded that "residential soil levels greater than 1 ppb TCDD pose a level of concern" and that the appropriate degree of concern on which management decisions are based should consider site-specific circumstances. Evidently there has been some confusion regarding the application of this advisory level. The 1 ppb figure applies to 2,3,7,8-TCDD only and does not apply to OCDD. These are different compounds. Like seawater and tapwater, they are related but have different properties and characteristics. The consumption of one may be fatal: the other is not.

4. Your letter of January 18 states that dioxins do not biodegrade, Whey just pile up." This is not entirely accurate. A number of studies have investigated the time required for dioxins to breakdown in the environment. Opinions vary on this point; however, in a 1984 study, the United States Environmental Protection Agency (EPA) estimated that the half-life of 2,3,7,8-TCDD (the amount of time required to naturally degrade 50 percent of the remaining residual concentration) is on the order of one to two years. It is true that the more heavily chlorinated varieties of dioxin are more persistent in the environment, however, there are many factors which influence the environmental fate of chemicals, and it would be hasty to conclude that dioxin which may occur as a trace contaminant in pesticides applied to young conifers would cause health effects in individuals coming into contact with products made from the harvested wood, and eventually lead to a collapse of the national economy.

5. Your letter also states that dioxins are toxins, and toxins are poisons. "A toxin is a toxin," you say, and "It may kill some people faster than others, but it kills." Nearly every substance known to man can kill if the concentration and exposure are great enough. Even substances which are relatively harmless may, in excess, be fatal, and substances which are beneficial in small quantities (e.g. Vitamin A) may be toxic in high concentrations. On the other hand, even the most potent susbtances will not exert a toxic effect if the concentration is below a certain level. There are 75

different types (isomers) of dioxin. Some of these are highly toxic while others, like OCDD, are relatively nontoxic according to scientific studies and would have to be present in very high concentrations to cause acute illness or death.

I appreciate your concern over the presence of OCDD in fly ash. We take your concerns and the health of the citizens of this state quite seriously but, upon reviewing all of the facts in this case, we are led to the conclusion that the problems which you describe are probably not due to OCDD exposure. We believe that there may be some other explanation or variable which could account for your ailment. I hope that this response adequately addresses your concerns. Mr. Norman Riley of my staff has reviewed your case, and he is available to assist you if you have additional questions. You can reach Mr. Riley at (916) 324-1807.

Sincerely,

David J. Leu

David J. Leu, Ph.D., Chief
Alternative Technology Section
Toxic Substances Control Division

Enclosure

cc: Ms. Susan Warner
California Regional
Water Quality Control Board
North Coast Region
1440 Guerneville Road
Santa Rosa, CA 93401

Georgia-Pacific

intracompany memo

to	Distribution	location	
from	Fred McCaig	location	Atlanta, GA
subject	Fort Bragg, CA - Dioxin in Wood Ash	date	February 26, 1987

The attached information was sent to us by Steve Petrin of Fort Bragg, California. Please refer to a previous memo from me dated November 19, 1986. These new letters are a follow up from the previous communication.

Also, please note that the California Regional Water Quality Control Board - North Coast Region, has requested that Fort Bragg, California sample and analyze freshly generated ash from the power plant. A technical report describing our sampling plan and schedule for analyses was requested by February 28, 1987. This plan has been prepared and sent-to Fort Braqq for transmittal to the State as requested.

Fred McCaig
G. F. M.

GFM/cwm

cc: Jack Anderson (w/o attachment)
Doug Dutton (w/o attachment)

Distribution

Rick Horder
Beth Zoffman
Addison Bell

GP 09-1

① CC: Fred McCaig
Doug Dutton
Rick Horder
Pete Letter
Eric Schmidt
② File: [illegible]

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

February 27, 1987

Ms. Susan Warner
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Ms. Warner:

Enclosed is a sampling plan for chlorinated dioxin analysis as requested in your letter of February 4, 1987. This plan has been drafted by our Central Engineering Department in Atlanta and should ensure an accurate representation of our fly ash. Assuming your approval, we will be conducting sampling the week of March 22, 1987 and proceeding with analysis as per the proposed schedule.

We trust that the sampling will finally resolve any doubts as to the nature of the fly ash. Please contact me if you have any further questions or comments on this matter.

Sincerely,

Steven Petrin
Director, Environmental
Health and Safety
WESTERS WOOD PRODUCTS MFG.
California Wood Products

SP:db

cc: D. Jacobszoon
L. Ambrosini
J. Anderson

Wood Fly Ash Sampling and Dioxin Analysis Plan
Georgia-Pacific Fort Bragg

I. INTRODUCTION: This elan in designed to obtain an accurate analysis of the dioxin content in wood fired boiler fly ash. The following procedures are proposed to gather a representative sample of fly ash, transport it to the analytical laboratory for accurate analysis while maintaining chain of custody documentation guaranteeing preservation of the sample,

II. FLY ASH GENERATION: Georgia-Pacific's Fort.Bragg California Wood Production Plant Generates electricity and steam for process requirements by operating a boiler which utilizes wood chips and bark as a primary fuel. Incident to the wood combustion,ash is formed and collected, utilizing high efficiency cyclonic nit cleaners to reduce particulate emissions to the environment. This ash is commonly referred to as "fly ash".

III. SAMPLING LOCATION: The collected fly ash is stored in hoppers under tke cyclones and periodically dropped through valves into trucks for transport off-site. Samples will be obtained at the hopper discharge vulva outlet prior to entry into the truck beds. This will ensure an uncontaminated sample.

IV. SAMPLING TECHNIQUE: Specially cleaned widemouth glass jars with teflon lined caps will be shipped in sealed containers from the laboratory. Threr discretr sampler will be obtained over a five day period, consisting of at least 8 oz. Latex gloves will be warn by tha sampler and discarded after each of the three samples are obtained. The three separate sample bottles will be shipped to the laboratory for blending to obtain a single composite sample for analysis.

V. SAMPLE PRESERVATION: No unique or special presarvation techniques are required. Samples wilt he stored in sealed containers to minimize sun light exposure and shipped to the analytical lab using overnite package delivery.

VI. SAMPLE TRANSPORT: Sample jars will be sealed in the same container they are received from the contract laboratory with the chain of custody documents sealed within the container. The container will be hand carried by the saapler to the nearest Federal Express office and air shipped via overnite delivery to contract laboratory.

CHAIN OF CUSTODY: The sampler will complete the chain of custody sheet, including the Federal Express air hill number, and seal it inside the shipping container. The container access will be sealed with suitable tape and the container will be shipped to the contract laboratory. The laboratory technical receiving the Federal Express delivery will sign for the package and sign the chain of custody forms to complete the chain. The forms will be sent to the Fort Bragg facility and will br kept on file available far inspection.

VIII: CONTRACT LABORATORY: California Analytical Laboratories, Inc., Sacramento, California will perform the analysis. They have been chosen because of a demonstrated ability to determine dioxin isomer content at extremely low concentration during work performed for USEPA and the National Council for Air and Stream Improvement (N.C.A.S.I.) and through participation in USEPA Quality Assurance Programs.

IX. ANALYSIS PLANNED: Sample preparation will be performed by California Analytical Labs using proprietary procedures. The quantitative analysis will be performed using low resolution capillary gas chromotography mass spectrometry. The exact laboratory procedures including calibration, quality control, sample extraction and analytical methods are available from California Analytical Laboratories, fnc.. but will yield information on Tetra-, Penta-, Hexa-, Hepta-, and Octachlorinated Dibenzo-p-Dioxins.

X. SCHEDULE:

Agency Approval of Plan	- Week 0
Sampling 'Equipment Shipping	- Week 2
Sarpla Collection & Shipping	- Week 3
Sample Preparation	- Week 4
Sample Analysis	- Week 5
Report Subaittal	- Week B

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

February 27, 1987

Ms. Susan Warner
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Ms. Warner:

Enclosed is a sampling plan for chlorinated dioxin analysis as requested in your letter of February 4, 1987. This plan has been drafted by our Central Engineering Department in Atlanta and should ensure an accurate representation of our fly ash. Assuming your approval, we will be conducting sampling the week of March 22, 1987 and proceeding with analysis as per the proposed schedule.

We trust that the sampling will finally resolve any doubts as to the nature of the fly ash. Please contact me if you have any further questions or comments on this matter.

Sincerely,

Steven Petrin
Director, Environmental
Health and Safety
WESTERN WOOD PRODUCTS MFG.
California Wood Products

SP:db

cc: D. Jacobszoon
L. Ambrosini
J. Anderson

wood Fly Ash Sampling and Dioxin Analysis Plan
Georgia-Pacific Fort Bragg

I. ~~INTRODUCTION:~~ This plan is designed to obtain an accurate analysis of the dioxin content in wood fired boiler fly ash. The following procedures are proposed to gather a representative sample of fly ash, transport it to the analytical laboratory for accurate analysis while maintaining chain of custody documentation quaranteeing preservation of the sample.

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III. SAMPLING LOCATION: The collected fly ash is stored in hoppers under the cyclones and periodically dropped through valves into trucks for transport off-site. Samples will be obtained at the hopper discharge valve outlet prior to entry into the truck beds. This will ensure an uncontaminated sample.

IV. SAMPLING TECHNIQUE: Specially cleaned widemouth glass jars with teflon lined caps will be shipped in sealed containers from the laboratory. Three discrete samples will be obtained over a five day period, consisting of at least 8 oz. Latex gloves will be worn by the sampler and discarded after each of the three samples are obtained. The three separate sample bottles will he shipped to the laboratory for blending to obtain a single composite sample for analysis.

V. SAMPLE PRESERVATION: No unique or special preservation techniques are required. Samples will he stored in sealed containers to minimize sun light exposure and shipped to the analytical lab using overnita package delivery.

VI. SAMPLE TRANSPORT: Sample jars will be sealed in the same container they are received from the contract laboratory with the chain of custody documents sealed within the container. The container will be hand carried by the sampler to the nearest Federal Express office and air shipped via overnite delivery to contract laboratory.

VII. CHAIN OF CUSIODY: The sampler will complete the chain of custody sheet, including the Federal Express air bill number, and seal it inside th'e shipping container. The container access uill be sealed with suitable tape and the container uill be shipped to the contract laboratory. The laboratory technical receiving the Federal Express delivery will sign for the package and sign the chain of custody forms to complete the chain. The forms will be sent to the Fort Bragg facility and will be kept on file available for inspection.

VIII: CONTRACT LABORATORY: California Analytical Laboratories, Inc., Sacramento, California will perform tha analysis. They have been chosen because of a demonstrated ability to determine dioxin isomer content at extremely low concentration during work performed for USEPA and the National Council for Air and Stream Improvement (N.C.A.S.I.) and through participation in USEPA Quality Assurance Progrars.

IX. ANALYSIS PLANNED: Sample preparation will be performed by California Analytical Labs using proprietary procedures. Tha: quantitative analysis will be performed using low rerolution capillary gas chromotography mass spectrometry. Tha exact laboratory procedures including calibration, quality control, sample extraction and analytical methods are available from California Analytical Laboratories, Inc., but will yield information on Tetra-, Penta-, Hexa-, Hepta-, and Octachlorinated Dibenzo-p-Dioxins.

X. SCHEDULE:

Agency Approval of Plan	- Week 0
Sampling Equipment Shipping	- Week 2
Sample Collection & Shipping	- Week 3
Sample Preparation	- Week 4
Sample Analysis	- Week 5
Report Subaittal	- Week 8

F

March 3, 1987

Steve Petrin
Director, Environmental Health and Safety
Western Wood Products Manufacturers
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Mr. Petrin:

Thank you for your submittal of February 27, 1987 regarding analysis of the fly ash. The sampling plan appears adequate, with one exception. Polychlorinated dibenzofurans should also be analyzed; accordingly, Section IX of the plan should be amended to include the dibenzofuran analysis. The eight week schedule as outlined appears satisfactory, and I look forward to receiving your report.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

SAW:mkh

cc: Ellie Giovannoni
Jerry Davis

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-3651

March 13, 1987

CERTIFIED MAIL
P 236 628 654
Return Receipt Requested

Mr. Benjamin D. Kor
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the February 1987 report for the Georgia-Pacific Soil Amending Project as per revised Monitoring and Reporting Program 86-3.

Sincerely,

Steven Petrin
Director, Environmental
Health and Safety
California Wood Products

SP:sp
Encl.

REC'D MAR 11 1987

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 2-13-87
DATE IN LAB 3-6-87
COLLECTED BY D. Larkin
SAMPLE TYPE Water

LABORATORY NO.:	7-1230	7-1231	
CLIENT I.D. :	Little Valley # 5	Little Valley # 6	
NFR	8	8	mg/L

Alpha
Analytical Laboratories, Inc.

Emily Turrubiartes 3-10-87
LABORATORY DIRECTOR DATE

REC'D MAR 11 1987

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 2-13-87
DATE IN LAB 3-6-87
COLLECTED BY D. Larkin
SAMPLE TYPE Water

LABORATORY NO.:	7-1232	7-1233	
CLIENT I.D. :	Little Valley # 8	Little Valley # 9	
NFR	6	7	mg/L

Alpha
Analytical Laboratories, Inc.

LABORATORY DIRECTOR DATE

Due to wet ground conditions, no ash was incorporated during February. All loads of ash were placed in the winter storage area as approved by Sue Warner. Total Volume to the winter storage area was 3,480 cubic yards during the month of February.

Stormwater Runoff Monitoring

Suspended sediment samples were analyzed by Alpha Analytical Labs in Ukiah. The pH samples were tested by C/P personnel (Steve Petrin) and original data is recorded in an operating log at the mill.

LITTLE VALLEY pHs

pt:	5	6	7	8	9
Date					
2/02	7.2	7.0	6.9	6.6	6.8
2/13	6.7	6.7	6.8	6.8	6.8
2/14	6.5	6.7	6.7	6.6	6.7

SUSPENDED SOLIDS mg/l

pt:	5	6	7	8	9
Date					
2/13	8	8	N/A	6	7
2/02*	12	14	28	13	19

*Figures received over the phone from Alpha Analytical Laboratories.

FEBRUARY 1987 REPO

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by Week - Cubic Yards of Ash - deposited at the winter storage area.

February	01-07	980
	08-14	780
	15-21	860
	22-28	860

Number of Treated Acres (Area A) 23.24 Acres
Number of Treated Acres (Area W) 5 Acres

WATER QUALITY CONTROL BOARD REGION 1

MAR 16 '87

☐ BK ___ ☐ RC ___
☐ CJ ___ ☐ ___
☐ FR ___ ☐ ___
☐ RT ___ ☐ ___
☐ JH ___ ☐ ___
a BE ___ ☐ ___
☐ JG ___ ☐ REPLY
☐ ALL STAFF ☐ FILE

Daily Precipitation Measurements		PPT (Inches)
February	1	1.6
	2	0.23
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0.45
	11	0
	12	1.94
	13	0.06
	14	0.20
	15	0.80
	16	0
	17	0
	18	0
	19	0
	20	0
	21	0
	22	0
	23	0
	24	0
	25	0
	26	0
	27	0
	28	0

Doug D., Rick Horder, Doug Roberts

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

② file: Ft Bragg/S.W.

MAR 26 1987

Environment

March 13, 1987

Ms. Susan Warner
Assoc. Engineering Geologist
California Regional Water
Quality Control Board
North Coast Region
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Ms. Warner:

Thank you for your letter of March 3, 1987 and subsequent telephone conversations concerning our sampling plan for fly ash. Despite our disagreement with the need and reasoning for additional analysis, Georgia-Pacific agrees to amend Section IX of the plan to include a polychlorinated dibenzofuran analysis. It is our hope to maintain a cooperative relationship with the Board staff and any further challenge on this matter would only be counter productive.

Accordingly, we will proceed with sampling and analysis as per the schedule proposed in our plan. Assuming final notification of your approval this next week, sampling should occur the week of April 5, 1987 with the final report completed the week of May 10, 1987.

Sincerely,

Steven Petrin
Director, Environmental
Health and Safety
California Wood Products

SP:db

cc: D. Jacobszoon
D. Whitman
J. Anderson/Atlanta

March 23, 1987

Steve Petrin
Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Mr. Petrin:

I received your letter of March 16, 1987, indicating that you will proceed with both polychlorodibenzodioxin and polychlorodibenzofuran analyses of the sawmill power plant ash. As I indicated to you on the telephone, furans are usually associated with dioxins and may be equally hazardous. I am pleased that you intend to analyze for both classes of chemicals, and look forward to receiving your report in accordance with the time schedule set out in your March, 1987 work plan. Please call me if you have any questions in this matter.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

SAWmkh

cc: Jerry Davis
Ellie Giovannoni

Georgia-Pacific

intracompany memo

to	S. A. Petrin	location	Fort Bragg, CA
from	J. A. Anderson	location	Atlanta, GA
subject	Soil Removal - Willits Site	date	March 26, 1987

Congratulations on obtaining regulatory concurrence for the declassification of the soil at Willits!

If you have nor already done so, please send a copy of Charles Greene's (NCRWQCB) letter to Little Lake Industries.

Thank you for keeping me up-to-date on this item.

J. A. A.

JAA/ms

cc: G. D. Dutton
P. Fetter
R. A. Horder
G. F. McCaig
D. P. Roberto

GP 09 - 1

April 15, 1987

WATER QUALITY
CONTROL BOARD
REGION I

APR 16 '87

☐ BK ☐ RC
☐ CJ ☐ SCS(x)
☒ FR 4 ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☒ FILE

Susan Warner
Water Quality Control Board
1440 Guerneville Rd.
Santa Rosa CA 95401

Dear Ms. Warner:

This letter is a request to obtain permission to acquire ash from the Georgia Pacific Mill, Fort Bragg to use as fertilizer for permanent pasture on land owned by myself and my wife at 44150 Johnson Park Road · East Caspar, California.

ash
Fort Bragg
Mendo Co.

This request is for one time only to enhance the soil. There is equipment on site, a D-4 cat with disc and plow. The ash will be incorporated into the soil in a moist condition to prevent any blowing. The field is approx. 2 acres - nearly level. There is the beginning of a gulch on the property, but the ash will be held back on level ground approx 50 yards away.

I'd appreciate the Quality Control Board's permission to obtain the ash. Thank you.

Michael A Cleary
P. BOX 14, Fort Bragg CA 95437
(707) 964-0691 or (707) 961-0353

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 91437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

APR 17 '87

☐ BK ____ ☐ KC ____
☐ CI ____ ☐ SW
☑ FR KC ☐ ____
☐ RT ____ ☐ ____
☐ JH ____ ☐ ____
☐ BB ____ ☐ ____
☐ JG ____ ☐ REPLY
☐ ALL STAFF ☐ FILE

April 15, 1987

CERTIFIED MAIL
P 236 628 667
Return Receipt Requested

Mr. Benjamin D. Kor
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the March 1987 report for the Georgia-Pacific Soil Amending Project as per revised Monitoring and Reporting Program 86-3.

Sincerely,

Steven Petrin
Director, Environmental
Health and Safety
California Wood Products

SP:db

Encl.

REC'D APR 06 1987

alpha

Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 3-21-87
DATE IN LAB 3-25-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-1554	7-1555	
CLIENT I.D. :	Little Valley a 8	Little Valley # 9	
NFR	11	2	mg/L
pH	6.8	6.7	

Alpha
Analytical Laboratories, Inc.

Burnet Lowe 4-1-87
LABORATORY DIRECTOR DATE

REC'D APR 0 C 1987

alpha

Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacifir
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 3-21-87
DATE IN LAB 3-25-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-1551	7-1552	7-1553	
CLIENT I.D. :	Little Valley # 5	Little Valley # 6	Little Valley # 7	
NFR	8	2	4	mg/L
pH	7.4	7.1	7.1	

Alpha
Analytical Laboratories. Inc.

Bruce L. Lane 1-1-87
LABORATORY DIRECTOR DATE.

RECD APR 08 1987

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 3-12-87
DATE IN LAB 3-17-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-1420	7-1421	
CLIENT I.D. :	Little Valley # 8	Little Valley # 9	
NFR	13	4	mg/L
COD	19	11	mg/L
pH	6.5	6.6	

Alpha
Analytical Laboratories, Inc.

Bruce L. Lane 4-6-87
LABORATORY DIRECTOR DATE

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

REC'D APR 08 1987

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 3-12-87
DATE IN LAB 3-17-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO.:	7-1417	7-1418	7-1419	
CLIENT I.D. :	Little Valley # 5	Little Valley # 6	Little Valley # 7	
NFR	10	6	7	mg/L
COD	14	<1	<1	mg/L
pH	6.5	6.6	6.7	

Alpha
Analytical Laboratories, Inc.

Bruce L. Hope 4-6-87
LABORATORY DIRECTOR DATE

REC'D MAR 3 0 1987

alpha

Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT Georgia Pacific
ADDRESS 90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED 3-5-87
DATE IN LAB 3-10-87
COLLECTED BY Steve Petrin
SAMPLE TYPE Water

LABORATORY NO. :	7-1280	7-1281	7-1282	
CLIENT I.D. :	Little Valley # 7	Little Valley # 8	Little Valley # 9	
NFR	26	19	20	mg/L
COD	25	45	15	mg/L
pH	6.7	7.1	7.0	

[illegible]

Alpha
Analytical Laboratories, Inc.

[signature] 3-26-87
LABORATORY DIRECTOR DATE

REC'D MAR 30 1987

Alpha
Alpha Analytical Laboratories Inc. • 860 Waugh Lane, H-1, Ukiah, California 95482
(707) 468-0401

CLIENT ADDRESS: Georgia Pacific
90 West Redwood Avenue
Fort Bragg, CA 95437
ATTN: Steve Petrin

DATE COLLECTED: 3-5-87
DATE IN LAB: 3-10-87
COLLECTED BY: Steve Petrin
SAMPLE TYPE: Water

LABORATORY NO.:	7-1278	7-1279	
CLIENT I.D. :	Little Valley # 5	Little Valley # 6	
NFR	1	22	mg/L
COD	<1	<1	mg/L
pH	6.8	6.9	

asked lab not to do COD on these

Alpha
Analytical Laboratories, Inc.

3-26-87
LABORATORY DIRECTOR DATE

Due to wet ground conditions, no ash was incorporated during March. All loads of ash were placed in the winter storage area as approved by Sue Warner. Total volume to the winter storage area was 3,680 cubic yards during the month of March.

Stormwater Runoff Monitoring

Suspended sediment samples were analyzed by Alpha Analytical Labs in Ukiah. The pH samples were tested by G/P personnel (Steve Petrin) and original data is recorded in an operating log at the mill.

LITTLE VALLEY pHs

pt:	5	6	7	8	9
Date					
03/05	6.8	6.9	6.7	7.1	7.0
03/12	6.5	6.6	6.7	6.5	6.6
03/21	7.4	7.1	7.1	6.8	6.7
03/22	6.7	6.8	6.7	6.9	6.7

SUSPENDED SOLIDS mg/1

pt:	5	6	7	8	9
Date					
03/05	1	22	26	19	20
03/12	10	6	7	19	11
03/21	8	2	4	11	2

COD

03/12	14	<1	<1	19	11

MARCH 1987 REPORT

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by Week		- Cubic Yards of Ash - deposited at the winter storage area
March	01 - 07	820
	08 - 14	860
	15 - 21	820
	22 - 28	900
	29 - 31	280

Number of Treated Acres (Area A)	23.24 Acres
Number of Treated Acres (Area W)	5

Daily Precipitation Measurements		PPT (Inches)
March	1	0
	2	1.58
	3	0.02
	4	1.88
	5	0
	6	0
	7	0.31
	8	trace
	9	0
	10	0.21
	11	0.93
	12	0.91
	13	0.22
	14	0
	15	0
	IF	0
	1[illegible]	0.33
	18	0.20
	19	0
	20	0.75
	21	0.06
	22	0.34
	23	0
	24	0
	25	0
	26	0
	2[illegible]	0
	28	0
	29	0
	30	0
	31	0

April 23, 1987

Michael A. Cleary
P.O. Box 14
Fort Bragg, CA 95487

Dear Mr. Cleary:

I received your letter proposing to use Georgia-Pacific fly ash on your farm on Johnson Park Road. You stated that you intend to keep the ash moist, and will incorporate it into the soil promptly. You must avoid erosion of ash and discharge to waters of the State. You should contact Rod Shippey of the County Farm Advisor's office to obtain information on proper pasture seed composition which will utilize the ash as a soil amendment.

I have concluded from my review of your proposal that the project could go forward with minimal or no water quality impacts. I will inspect the area following the ash incorporation during May. In addition, you should submit a brief letter report at the conclusion of the project to let us know that you have finished and are no longer accepting fly ash wastes. Please call me if you have any questions in this matter.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

SAW:mkh

cc: Ed Bridges, Mendocino County Health Department, Fort Bragg

May 7 1987

WATER QUALITY CONTROL BOARD REGION 1

MAY 19 '87

☐ BK ☐ RC
☐ CI ☐
☑ FB ☐
☐ RT ☐ SW
☐ JH ☐
☐ RB ☐
☐ JG ☐ REPLY

Dear Sirs:

I would like to inquire about a permit to have some fly ash delivered to my property for garden use. There are ways in area. The ash would be plowed into ground as soon as its delivered.

The parties delivering would be Fort Bragg Disposal. They informed me to write to you. I need to know several dump truck loads brought in.

Please issue permit as soon as possible.

Sincerely
Alan Murray
31550 Little Va Rd
Fort Bragg
Calif 95437

Caspar Calif. 95420
P.O. Box 101

Calif. Regional Water Quality Control Board
1440 Guerneville Rd.
S R CA 95401

WATER QUALITY CONTROL BOARD
REGION 1
MAY 8 '87
☐ BK ☐ RC
☐ CJ ☐
☑ FR ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☐ FILE

Attention Susan Warner

Dear Ms Warner,

I ~~am a neit~~ own the property adjacent to Mike Cleary on Johnson Park Rd in Caspar. I would like to receive your permission to acquire Georgia-Pacific fly ash to use as fertilizer for permanent pastures.

This request is for one time only to enhance the soil. I have use of the same equipment Mr. Cleary has and will keep the soil moist to prevent any blowing. My field is open and flat and a little uphill on the westerly boundary of Mr. Cleary. I understand I must avoid erosion of ash and discharge to the waters of the State.

I'd appreciate the Water Quality Control Board's mission to obtain the ash. L.M. Remstedt

Home Address 44200 Johnson Pk Rd.
East Caspar. Calif.

FILE: Ft Bragg / S.W

Georgia-Pacific Corporation · 90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

RECEIVED
MAY 18 1987
ENVIRONMENT

May 14, 1987

Ms. Susan A. Warner
Associate Engineering Geologist
California Regional
Water Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Ms. Warner:

As we have previously discussed, the analysis of our fly ash for chlorinated dibenzo dioxins and dibenzo furans is taking longer than anticipated. As of this date, we have not yet received the results.

I would hope to receive these within a week or two. Given another two weeks to prepare a report, this could conceivably delay our final report until mid-June. I will give you an update on the sample status in the next week.

If you have questions or concerns regarding this matter, please call me at the above number.

Sincerely,

Steven Petrin
Director, Environmental
Health and Safety

SP:db

cc: D. Whitman
R. Shoulders
J. Anderson/Atlanta

87 MAY 18 PM 8:44

Georgia-Pacific Corporation
90 West Redwood Avenue
Fort Bragg, California 95437
Telephone (707) 964-5651

WATER QUALITY
CONTROL BOARD
REGION 1

MAY 15 '87

☐ BK ☐ DG
☐ CJ ☐ SCJ
☑ FR ☐
☐ RT ☐
☐ JH ☐
☐ BB ☐
☐ JG ☐ REPLY
☐ ALL STAFF ☐ FILE

May 15, 1987

CERTIFIED MAIL
P 236 628 656
Return Receipt Requested

Mr. Benjamin Kor
California Regional Water
Quality Control Board
1440 Guerneville Road
Santa Rosa, CA 95401

Dear Mr. Kor:

Enclosed you will find the April 1987 report for the Georgia-Pacific Soil Amending Project as per revised Monitoring and Reporting Program 86-3.

Sincerely,

Steven Petrin
Director, Environmental
Health and Safety
California Wood Products

SP:db

Encl.

APRIL 1987 REPO

GEORGIA-PACIFIC CORPORATION

FORT BRAGG SOIL AMENDMENT MONITORING AND REPORTING PROGRAM NO. 86-3

Monitoring

Volume of ash deposited by Week		- Cubic Yards of Ash - deposited at the winter storage area and area A.
April	01 - 04	520
	05 - 11	820
	12 - 18	740
	19 - 25	1100
	26 - 30	560

Number of Treated Acres (Area A) 23.32 Acres
Number of Treated Acres (Area W) 5

Daily Precipitation Measurements		PPT (Inches)
April	1	0
	2	trace
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0.15
	11	0
	12	0
	13	0
	14	0
	15	0
	16	0
	17	0
	18	0
	19	0
	20	0
	21	0
	22	0
	23	0
	24	0
	25	0
	26	0
	27	0
	28	0
	29	0
	30	0.86

Due to wet ground conditions, ash was only incorporated one day in April. All other loads of ash were placed in the winter storage area as approved by Sue Warner. Total volume to the winter storage area was 3,600 cubic yards, with 140 cubic yards going to Area A.

Stormwater Runoff Monitoring

No monitoring was conducted due to low precipitation and lack of run-off.

FILE: Fly Energy / Solid

California Analytical Laboratory

Enseco Incorporated

RECEIVED

MAY 21 1987

ENVIRONMENT

Enseco

May 16, 1987
Lab No. 28882
Received: 09-Apr-87
project ID: Material Release $1554
PO Number: 13193

Steven A. Petrin
Georgia-Pacific Corp.
90 West Redwood Ave.
Fort Bragg, CA 95437

Three fly ash samples were received under chain of custody in 16 ounce glass jars to be analyzed for Cl_4-Cl_8 dioxins and furans.

CAL I.D.	Sample I.D.
28882-1	Ash Hopper 20414 02-Apr-87
-2	Ash Hopper 20413 02-Apr-87
-3	Ash Hopper 20412 02-Apr-87

RESULTS

see attached data sheets.

Michael W. Orbanosky
Director of GC/MS Services

Robert S. Mitzel
GC/MS Lab supervisor

mbw

2544 Industrial Boulevard
West Sacramento, California 95691
916/372-1393

Facsimile: 916/372-1059

Enseco

ENSECO-CAL LAB

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO. 28882

CLIENT ID: METHOD BLANK

CAL ID: 28882MB

Date Analyzed: 5/8/87
Wet Weight: 10.09g
Dry Weight: N/A
Percent Moisture: N/A

Column: D9-5

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.0018
penta	ND	0.014
hexa	ND	0.0050
hepta	ND	0.0073
octa	ND	0.025
DIOXINS		
tetra (total)	ND	0.0068
penta	ND	0.0067
hexa	ND	0.015
hepta	ND	0.018
octa	ND	0.053 *

% Accuracy 37Cl-TCDD = 97%

% Recovery 13C-2378-TCDF = 64%
% Recovery 13C-2378-TCDD = 66%

ND = Not Detected

* Chemical Interference

PREPARED BY: [signature]

APPROVED BY: [signature]

DATE: 5/13/87

Enseco

ENSECO-CAL LAB

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO. 28882

CLIENT ID: Composite 20414, 20413, 20412

CAL ID: 28882C

Date Analyzed: 5/8/87
Wet Weight: 10.07g
Dry Weight: N/A
Percent Moisture: 0%

Column: DB-5

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	0.23	-
penta	ND	0.032
hexa	ND	0.0096
hepta	ND	0.024
octa	ND	0.13
DIOXINS		
tetra (total)	ND	0.012
penta	ND	0.014
hexa	ND	0.025
hepta	ND	0.034
octa	ND	0.21

% Accuracy 37Cl-TCDD = 96%

% Recovery 13C-2378-TCDF = 54%
% Recovery 13C-2378-TCDD = 42%

ND = Not Detected

Calculations based on Dry Weight

PREPARED BY: [illegible]

APPROVED BY: [illegible]

DATE: 5/13/87

MAY 20, 87

SUE WARNER
CAL. REG. WATER QUALITY CONTROL BOARD

I HAVE JUST SPOKEN TO STEVE PETRIN AT G.P. IN FORT BRAGG REGARDING OBTAINING FLY-ASH FOR THE PURPOSE OF FARMING, HE TELLS ME THAT I MUST CONTACT YOU FOR AUTHORIZATION.

I HAVE 1/4 ACRE OF RECENTLY BROKEN PIGMY FOREST THAT HAS BEEN CROSS RIPPED & ROTOTILLED WITH HEAVY EQUIPMENT.

PLEASE RESPOND SOON REGARDING YOUR NEEDS,

THANK YOU

Thor Cohlenty
PO 1378
MENDOCINO CA 95460
PH - 937 4276 - 707

ADDITIONALLY: -
ANY DATA ON THE CHEMISTRY OF THIS BY-PRODUCT - - NUTRIENTS: - NITROGEN, PHOS, ; POT, AND PARTICULARLY MINERALS THAT YOU MAY PROVIDE WOULD BE HELPFUL.

REGIONAL WATER RUALITY CONTROL HOARD
NORTH COAST REGION

Interoffice Communication

TO: (1) Frank Reichmuth DATE: 05/27/87
(2) File: Georgia-Pacific, soil amendment Fort Bragg ash

FROM: Susan Warner

RE: Inspection of the Little Valley ash amendment site

I inspected the Little Valley ash amendment area on May 19, 1987, with Steve Petrin, Dow Jacobzoon, Dave Larkin (all of Georgia-Pacific), Rod Shippey (Farm Adviaor's office), and Carl Rittiman and an associate (both from the USDA-SCS). The test plots look very well, with marked improvement in the amended areas over the unamended control areas. Results from the clippings of the test plots were not yet back. Attached are results from clippings from the Alan Spring area near Little River, which we (Shippey, Petrin and I) visited next, and which showed almost an equal response from the ash amendments as with a 0-P-K fertilizer.

The ash pile in the winter holding area had yet to be incorporated, and incorporation must begin at once in order to comply with the waste discharge requirements. The area covered by the cleanup and abatement order is rtahle, with no risk of discharge to surface waters. I recommend the C&A be rescinded, and attached is a draft recision order. I do recommend that this site be considered a priority one activity for at least another year. We are close to obtaining a long-term solution to the ash problem; another year of priority one effnrt should do the trick.

Mike Cleary
P.O. Box 14
Fort Bragg CA 95437

May 28, 1987

Water Quality Control Board
1440 Guerneville Rd.
Santa Rosa CA 95401

Attention Susan Warner

We have received Georgia-Pacific ash on the majority of the ground. We had proposed to fertilize, but because of the inability of our wells to sufficiently dampen the ash as it was incorporated, we decided to postpone the remainder of the project until the ground we have planted is grown to maturity. No ash has blown and the grass and clover is growing well.

I'd tentatively like to resume acceptance of ash this fall when fall rains will ease pressure on our wells. Please let me know if this is acceptable to the Water Quality Control Board. Thank you.

Sincerely,

Mike Cleary

WATER QUALITY
CONTROL BOARD
REGION 1

MAY 29 '87

☐ BK ___ ☐ RC ___
☐ CJ ___ ☐ ___
☑ FR FR ☐ ___
☐ RT ___ ☐ ___
☐ JH ___ ☐ ___
☐ BB ___ ☐ ___
☐ JG ___ ☑ REPLY
☐ ___ ☐ ___

May 29, 1987

Dan Murray
31550 Little Valley Road
Fort Bragg, CA 95437

Dear Mr. Murray:

I received your letter of May 7, 1987, regarding use of the Georgia-Pacific fly ash on your property in Little Valley. We are currently awaiting the results of further tests on the fly ash, and do not wish to authorize its use as a soil amendment until these results are received from Georgia-Pacific. I am also working with Rod Shippey of the Farm Advisors office in Ukiah to develop recommendations on application rates and seed mixtures for use as the ash as a soil amendment. Once these issues are resolved, then the ash may be used selectively as a soil amendment in the coast areas. You should contact this office again in about five weeks if you still wish to obtain the ash for soil amendment use.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

May 29, 1987

L. M. Remstedt
P.O. Box 101
Caspar, CA 95420

Dear Mr. Remstedt:

I received your letter of May 8, 1987, regarding use of the Georgia-Pacific fly ash on your property at 44200 Johnson Park Road in east Caspar. We are currently awaiting the results of further tests on the fly ash, and do not wish to authorize its use as a soil amendment until these results are received from Georgia-Pacific. I am also working with Rod Shippey of the Farm Advisors office in Ukiah to develop recommendations on application rates and seed mixtures far use as the ash as a soil amendment. Once these issues are resolved, then the ash may be used selectively as a soil amendment in the coastal areas. You should contact this office again in about five weeks if you still wish to obtain the ash for sail amendment use.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

F

May 29, 1987

Thor Coblenz
P.O. Box 1378
Mendocino, CA 95460

Dear Mr. Coblenz:

I received your letter of May 20, 1987, regarding use of the Georgia-Pacific fly ash on your property. We would need to know the exact location of the property and the equipment which will be on-hand to incorporate the ash into the soil. You would need to tell us how you will ensure that the ash does not accidentally migrate into wet areas or stream channels. The ash must be kept moist until incorporation to avoid a dust problem blowing from the site. Further, we ere currently awaiting the results of further tests on the fly ash, and do not wish to authorize its use as a soil amendment until these results are received from Georgia-Pacific. I em also working with Rod Shippey of the Farm Advisors office in Ukiah to develop recommendations on application rates and seed mixtures for use as the ash as a soil amendment. Once these issues are resolved, then the ash may be used selectively as a soil amendment in the coastal areas. You should contact this office again in about five weeks if you still wish to obtain the ash for soil amendment use.

Sincerely,

Susan A. Warner
Associate Engineering Geologist

May 29, 1987

Steve Petrin
Director, Environmental Health and Safety
90 West Redwood Avenue
Fort Bragg, CA 95437

Dear Mr. Petrin:

I received your letter of May 14, 1987, requesting an extension on the date required for submittal of the dioxin/furan report until mid-June. Accordingly, I will expect to see the report by June 15, 1987. Please call me if further difficulties are encountered in meeting your time schedule.

Sincerely,

Susan A. Warner
Associate Engineering Geologist