METROPOLITAN SERVICE DISTRICT
527 S.W. HALL ST., PORTLAND OR. 97201, 503/221-1646

METRO

AGENDA -- REGULAR COUNCIL MEETING

Date: February 4, 1982

Day: Thursday

Time: 6:30 PM - Informal Session
7:30 PM - Regular Council Meeting

Place: Council Chamber

CALL TO ORDER

ROLL CALL

1. Introductions

2. Written Communications to Council

3. Citizen Communications to Council on Non-Agenda Items

4. Resolutions:

   4.1 Resolution No. 82-294, A Resolution of Intent to Approve a Petition by David and Gerda Cereghino for an Urban Growth Boundary Locational Adjustment and to Amend the Boundary upon Annexation to Metro. (7:30)*

   4.2 Resolution No. 82-300, A Resolution Authorizing Recognition of and Participation in the Proposed Washington County Transportation Coordinating Committee. (7:40)*

5. Reports:

   5.1 Executive Officer's Report. (7:45)*

   5.2 Committee Reports. (7:55)*

   5.3 Special Report on Status of Energy Recovery Air Quality Permit. (8:10)*

ADJOURN to Councilors' Conference Room for Executive Session Re: Energy Recovery Contract. (8:20)*

*Times listed are approximate.

Agenda Item No. 4.1
February 4, 1982

AGENDA MANAGEMENT SUMMARY

TO: Metro Council
FROM: Executive Officer RLG
SUBJECT: Washington County Transportation Coordinating Committee

I. RECOMMENDATIONS:

A. ACTION REQUESTED: Adoption of the attached resolution.

B. POLICY IMPACT: Adoption of the attached resolution will provide Metro's endorsement of the Washington County Transportation Coordinating Committee, its bylaws and the participation of Metro with non-voting policy liaison status to the Committee.

C. BUDGET IMPACT: None.

II. ANALYSIS:

A. BACKGROUND: Washington County plans to form a committee to review and comment on major transportation issues, plans and projects and provide a forum for discussion on these topics.

Membership will be comprised of:

1) Elected city and county officials within Washington County;

2) JPACT representatives from Washington County and its cities; and

3) Liaison policy participation by Metro, Tri-Met and ODOT.

Coun. Bob Oleson recommends endorsement of the Committee and its bylaws and has agreed to serve as Metro's representative to the Committee.

B. ALTERNATIVES CONSIDERED: Metro could choose not to participate. However, the transportation issue is a major concern to Washington County as well as a regional concern for Metro and Metro's considerable resources in transportation should be made available to the Committee.

C. CONCLUSION: Metro staff recommends approval of the attached resolution and supports Metro involvement in the proposed Washington County Transportation Coordinating Committee.

BEFORE THE COUNCIL
OF THE METROPOLITAN SERVICE DISTRICT

A RESOLUTION AUTHORIZING RECOGNITION OF AND PARTICIPATION IN THE PROPOSED WASHINGTON COUNTY TRANSPORTATION COORDINATING COMMITTEE.	))))	RESOLUTION NO. 82-300 Introduced by Coun. Oleson

WHEREAS, Washington County has determined that a formal organization is needed to review and comment on major transportation issues, plans and projects affecting Washington County and its cities; and,

WHEREAS, agreement on transportation issues, plans and projects between all Washington County jurisdictions is vital to assure necessary funding for street and highway improvement projects in Washington County; and

WHEREAS, a Washington County Transportation Coordinating Committee is being formed, composed of elected officials of the cities of Beaverton, Hillsboro, Tigard, Tualatin and Washington County; and

WHEREAS, the Metropolitan Service District agrees that such a coordinating committee is beneficial for Washington County and its citizens.

NOW, THEREFORE, BE IT RESOLVED by the Council of the Metropolitan Service District that it shall formally recognize and participate as a non-voting policy liaison of the presently forming Washington County Transportation Coordinating Committee.

BE IT FURTHER RESOLVED that the Metropolitan Service District also approves the attached bylaws governing the proposed committee and also agrees to appoint a non-voting policy liaison member.

ADOPTED by the Council of the Metropolitan Service District this ____ day of _____, 1982.

_____
Presiding Officer

BY-LAWS FOR THE WASHINGTON COUNTY TRANSPORTATION COORDINATING COMMITTEE

1. PURPOSE

The Washington County Transportation Coordinating Committee will review and comment on major transportation issues, plans and projects and provide a forum for discussion on these resulting in recommendations when appropriate.

2. MEMBERSHIP POLICY BODY

The voting membership shall consist of elected representatives of the cities of Beaverton, Hillsboro, Tigard, Tualatin and Washington County with non-voting policy liaison by Metro, ODOT and Tri-Met. Washington County and cities of Washington County representatives to JPACT will be on the policy body.

3. OFFICERS

A chairperson and vice-chairperson/secretary of the committee shall be elected by a majority of the voting committee members present.

4. PROCEDURES

A. Meetings: Meetings will be call as needed by the chairperson or by vote of the committee. The chairperson is responsible for notifying members of the meeting time and place and for preparing the agenda.

B. Quorum: A quorum of the committee shall be a majority of the voting members.

C. Voting: Voting in the committee shall carry by a simple majority of a quorum being present.

D. Alternates: A designated alternate will sit in the absence of a member and shall have full voting rights. Alternates will be elected officials appointed by the member jurisdiction.

E. Records: All committee actions shall be documented in the form of minutes, memoranda and special reports. The chairperson will be responsible for such documentation and distribution of such minutes, memoranda and reports.

F. Meetings shall be conducted in accordance with Roberts' Rules newly revised.

5. ATTENDANCE

Unexcused absence of a member or his alternate from three consecutive meetings shall be cause for revocation of voting rights.

6. TECHNICAL COORDINATING COMMITTEE

There is hereby established a Technical Coordinating Committee. The Technical Coordinating Committee membership consists of staff representatives of all agencies on the policy body and the City of Portland and is to review transportation issues, plans and projects and make recommendations to the policy body. The Technical Coordinating Committee shall operate under the same procedures as the policy body.

7. AMENDMENTS

These By-Laws, except Section 2 voting members, may be amended from time to time by a majority of the members of the Committee, provided that all voting members of the committee have been sent copies of the proposed amendments prior to the meeting where action on the rules is scheduled. Amendments to the voting members of Section 2 shall require ratification of the majority of voting member governing bodies.

WASHINGTON COUNTY TRANSPORTATION COORDINATING COMMITTEE

Objective: Formation in Washington County of a committee which can review and comment on major transportation issues, plans and projects and provide a forum for discussion on these resulting in recommendations when appropriate.

Membership: Representation through elected officials of the cities of Beaverton, Hillsboro, Tigard and Tualatin and Washington County. Liaison policy participation by Metro, ODOT and Tri-Met is provided. The Washington County and cities of Washington County representatives to JPACT will be on the policy body.

Scope: Review and evaluate proposed alternatives and recommend transportation policies, programs and projects to improve transportation in Washington County.

- Review proposals for the Westside Transitway project and make recommendations
- Review and participate in the Washington County Transportation Plan
- Prioritize and coordinate interstate transfer project requests
- Review and make recommendations for Washington County Transit Service
- Analyze and make recommendations on the regional transportation planning
- Coordinate and make recommendations on interjurisdictional functional classification issues
- Analyze and make recommendations on road operation and maintenance issues
- Provide coordinated positions on ODOT and Metro funding programs
- Provides input to ODOT and Transportation Commission regarding Capital Improvements to highway systems
- Coordinate Local, County and Regional transportation planning

RESOLUTION NO. _____

A RESOLUTION AUTHORIZING RECOGNITION OF AND PARTICIPATION IN THE PROPOSED WASHINGTON COUNTY TRANSPORTATION COORDINATING COMMITTEE.

WHEREAS, a formal organization is needed in Washington County to review and comment on major transportation issues, plans and projects affecting Washington County and its cities; and,

WHEREAS, agreement on transportation issues, plans and projects between all Washington County jurisdictions is vital to assure necessary funding for street and highway improvement projects in Washington County; and,

WHEREAS, a Washington County Transportation Coordinating Committee is being formed, composed of elected officials of the Cities of Beaverton, Hillsboro, Tigard, Tualatin and Washington County; and,

WHEREAS, the City Council agrees that such a coordinating committee is beneficial for the City of Hillsboro and its citizens.

NOW, THEREFORE BE IT RESOLVED BY THE CITY OF HILLSBORO that the City shall formally recognize and participate as a member of the presently forming Washington County Transportation Coordinating Committee.

BE IT FURTHER RESOLVED that the City of Hillsboro also approves the attached By-Laws governing the proposed committee, and agrees to appoint a member and alternate and a technical representative.

Passed by the Council this _____ day of _____, 1982.

Approved by the Mayor this _____ day of _____, 1982.

_____
Mayor

ATTEST: _____
City Recorder

Agenda Item No. 4.2
February 4, 1982

A G E N D A M A N A G E M E N T S U M M A R Y

TO: Metro Council
FROM: Executive Officer
SUBJECT: Contested Case No. 81-8, In the Matter of a Petition by David and Gerda Cereghino for a Locational Adjustment of the Urban Growth Boundary

I. RECOMMENDATIONS:

A. ACTION REQUESTED: Council adoption of Resolution No. 82-294, to approve a petition by David and Gerda Cereghino for an Urban Growth Boundary locational adjustment and to amend the Boundary upon annexation to Metro.

B. POLICY IMPACT: The Hearings Officer's recommendation has been prepared following the Standards and Procedures provided in Metro Ordinance No. 81-105, Establishing Procedures for Locational Adjustments of Metro's UGB. Section 16 of Ordinance No. 81-105 provides that over the next three years, the average annual net addition of land should not exceed 100 acres. A summary of all petitions received and the total acreage requested for addition is attached (Attachment 3).

C. BUDGET IMPACT: None.

II. ANALYSIS:

A. BACKGROUND: The petition is summarized at the beginning of the Hearings Officer's report (Attachment 2). The location of the proposed addition is shown on Attachment 1. Staff reviewed the Cereghino request prior to the hearing and recommended that it be denied. A hearing was held on October 8, 1981 before Metro Hearings Officer Dale Hermann and testimony was received from the applicant and from his planning consultant. The Hearings Officer recommended that the petition be approved. At its November meeting, the Committee set this case over a month to allow the applicant to present additional information and argument. The Committee heard further information and and argument at its meeting on January 19 and voted to accept the Hearings Officer's report and recommend approval of the petition to the Council.

B. ALTERNATIVES CONSIDERED: The alternative of denying the petition was recommended by staff prior to the hearing and considered and rejected.

C. CONCLUSION: Adoption of the attached Resolution and of the Hearings Officer's Findings, Conclusions and Recommendation will approve an adjustment of the UGB that increases its effectiveness and efficiency, consistent with the standards in Ordinance No. 81-105.

JH/le
4467B/283
1/21/82

BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

A RESOLUTION OF INTENT TO APPROVE A PETITION BY DAVID AND GERDA CEREGHINO FOR AN URBAN GROWTH BOUNDARY LOCATIONAL ADJUSTMENT AND TO AMEND THE BOUNDARY UPON ANNEXATION TO METRO	))))))	RESOLUTION NO. 82-294 Introduced by the Regional Development Committee

WHEREAS, David and Gerda Cereghino have submitted a request for a locational adjustment to the Urban Growth Boundary (UGB) in Washington County; and

WHEREAS, Such request was given a contested case hearing before a Metro Hearings Officer on October 8, 1981; and

WHEREAS, The Hearings Officer has submitted Findings, Conclusions and Recommendations; and

WHEREAS, The Council has reviewed and agrees with the Findings, Conclusions and Recommendations as submitted by the Hearings Officer; and

WHEREAS, Section 14(d) of Ordinance No. 81-105 provides that "when the Council acts to approve...a petition affecting land outside the District...such action shall be by resolution expressing intent to amend the UGB if and when the affected property is annexed to the District..."; and

WHEREAS, The requested adjustment is not within the Metro District; now, therefore,

BE IT RESOLVED,

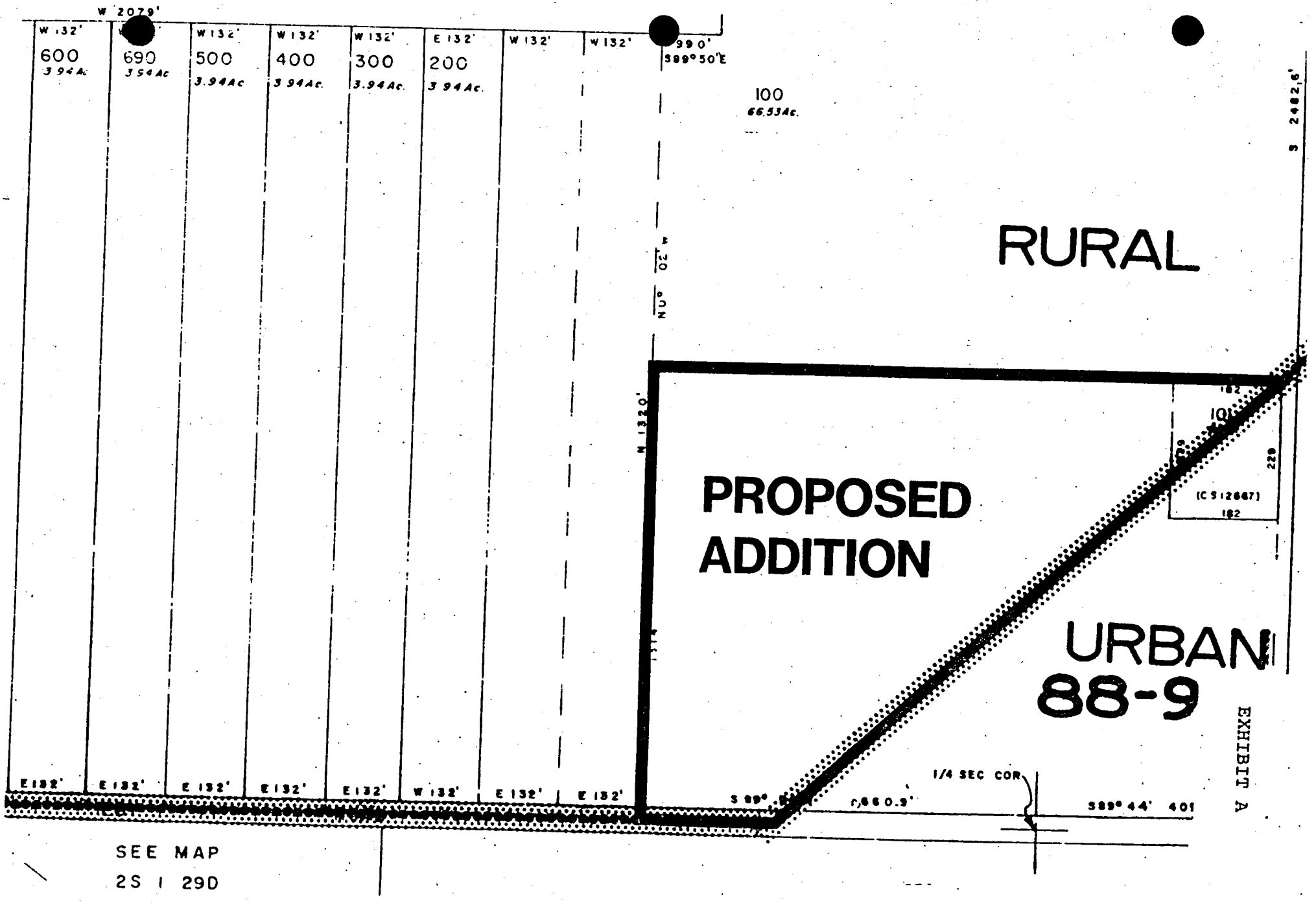
1. That the Council hereby declares its intent to approve the petition and to amend the Urban Growth Boundary as indicated in Exhibit A hereto following annexation of that property to Metro.

2. That the approval and adoption indicated in section 1 of this Resolution shall be by ordinance and that such ordinance shall be the Final Order in Contested Case No. 81-8 for purposes of judicial review.

ADOPTED by the Council of the Metropolitan Service District this _____ day of _____, 1982.

_____
Presiding Officer

JH:le
4444B/259
1/7/82


W 2079'
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600
3.94 Ac.
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200
3.94 Ac.
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990'
S89°50'E
100
66.53 Ac.
S 2482.6'
N 420'
RURAL
N 1320'
PROPOSED
ADDITION
101
229
(C.S. 12647)
182
URBAN
88-9
EXHIBIT A
E 132'
E 132'
E 132'
E 132'
E 132'
W 132'
E 132'
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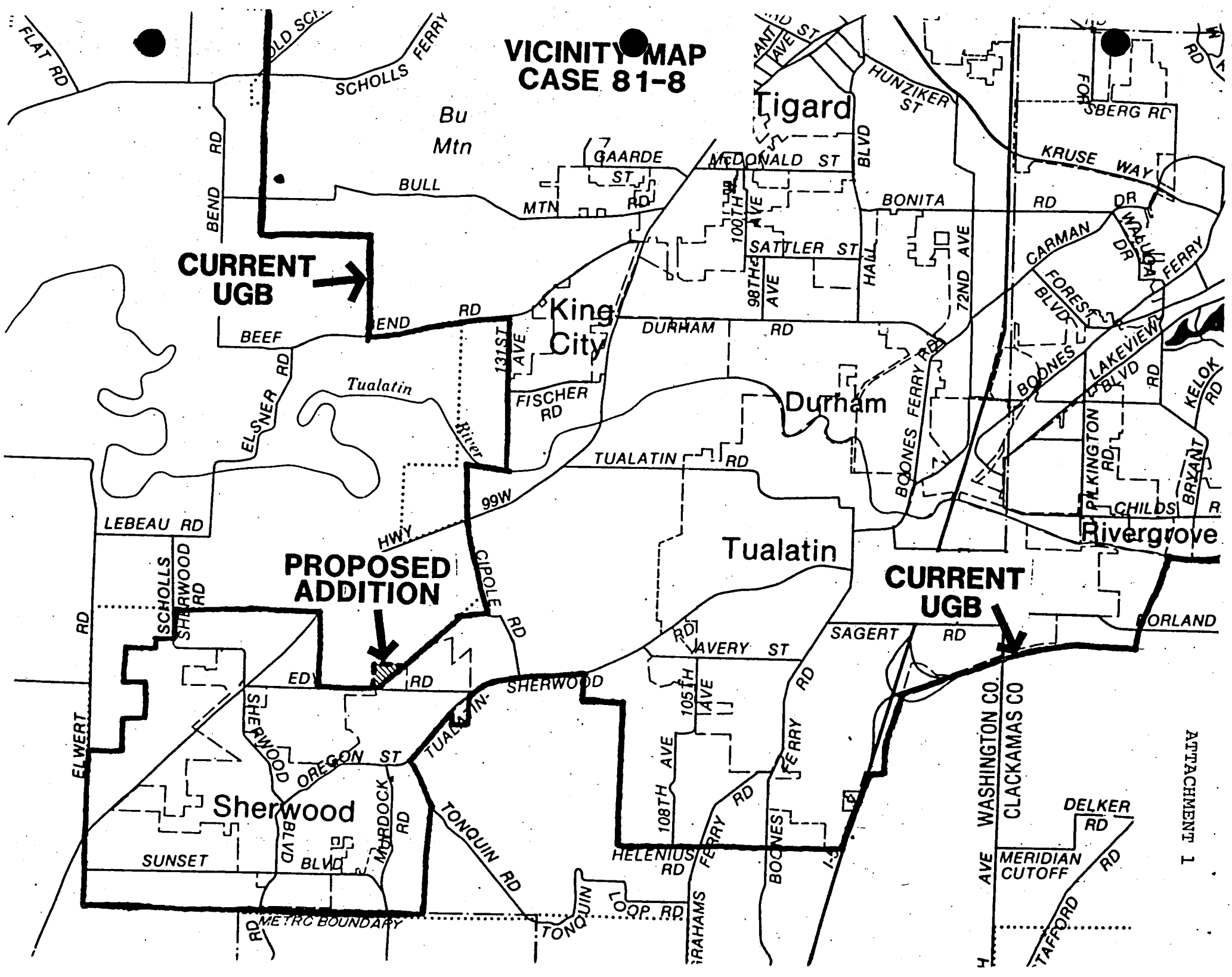
660.9'
S89° 44' 40"
SEE MAP
2S 1 29D
METRO BOUNDARY
URBAN GROWTH BOUNDARY (12-21-78)
21801-
2S 1 29A



ATTACHMENT 1

Attachment 2

BEFORE THE HEARINGS OFFICER

OF THE METROPOLITAN SERVICE DISTRICT

Petition for Locational Adjustment of Urban Growth Boundary by David and Gerda Cereghino.	)	NO. 81-8
	)	FINDINGS, CONCLUSION AND RECOMMENDATION

SUMMARY OF REQUEST

This petition is to add portions of two tax lots (TLS) currently divided by the Urban Growth Boundary (UGB). One, TL 101, is a .96-acre parcel which is about two-thirds within the UGB now and would, if this adjustment is approved, be included in its entirety. The other lot, TL 100, is a 66.63-acre parcel, approximately seven acres of which is now within the UGB, and approximately ten additional acres of which is proposed for inclusion for this amendment. The property is located along the urban corridor between Tualatin and Sherwood. The UGB along this stretch follows the U.S.A. boundary which runs parallel to the Southern Pacific Railroad and cuts diagonally through a number of properties in this area that are also oriented toward section lines. The City of Sherwood and Washington County both support this adjustment, and none of the service providers have any objection.

STANDARDS FOR APPROVAL
FINDINGS AND CONCLUSIONS

1. Based upon my review of the matters contained in the case file and the evidence presented at the hearing, I find that I can most efficiently set forth what I believe to be the appropriate standards, findings and conclusions by referencing and incorporating herein portions of the report prepared by Benkendorf & Associates.

2. The standards for approval and the findings regardings these standards contained in the above-referenced report, pages 15-19, are incorporated herein.

3. The specific additional findings of fact contained at pages 20-21, of the above-referenced report are incorporated herein.

4. The conclusions of the above-referenced report contained on pages 21-22, are incorporated herein.

RECOMMENDATION

Based upon the above findings and conclusions, I recommend that the application be approved.

DATED: October 23, 1981.

Dale M. Hermann
Hearings Officer

D. Compliance with METRO Criteria - Section 8 of METRO Ordinance No. 81-105 contains five criteria to be addressed and considered for any Locational Adjustment to the Regional Urban Growth Boundary. Each criteria is addressed individually in this section.

1. Orderly and Economic Provision of Public Facilities and Services - Water and sanitary sewer services have been planned and programmed for the northeast Sherwood area for several years. A Local Improvement District was formed to facilitate planning and financing of the systems. Service plans were finalized and included in the city's Community Development Plan as the Sewer Service Plan (Figure VII-1) and Water Service Plan (Figure VII-5). In the Sewer Program Priority (Table VII-4), both the Rock Creek Trunk and the Edy Road Lateral which will serve the site are Priority 1 items and are scheduled for completion in 1981. Water service will be available in mid-summer, 1981.

   The Edy Road Sewer Lateral will extend eastward from the Rock Creek Trunk at the west property line of Tax Lot 100 along Edy Road to the east property line of the subject site. With the Locational Adjustment, the eight-inch lateral would serve properties on the north side of the road in addition to properties on the south side, increasing the efficiency of the new sewer line. The line size will remain at eight inches.

   Assessments through the Rock Creek L.I.D. may be more equitably amortized and additional revenues may be gained from an increased number of hookups, not only for sanitary sewer but for water service. Economically, the Locational Adjustment will benefit the L.I.D. and the city and will create a more efficient use of the programmed services.

   Storm drainage is not an issue. Localized drainage will be improved when development occurs. The Rock Creek channel will be used for drainage purposes and will be facilitated by the proximity of the site to the channel.

Fire protection will continue to be provided by the Tualatin Rural Fire Protection District.

Police protection would remain under the jurisdiction of the Washington County Sheriff's Department.

Any development on the site after the Locational Adjustment occurs will result from annexation to the city of Sherwood. All services and facilities will be in place or programmed and proposed development will not adversely impact the services or facilities.

2. Maximum Efficiency of Land Uses - The existing Regional U.G.B. has created an awkward and inefficient development parcel. The area within the U.G.B. not only bisects the only dwelling on the site, but creates an irregularly shaped area. Unusual geometric shapes are unsuitable for industrial purposes.

   The Locational Adjustment will not change the southwest and northeast corners. The created parcel north of Edy Road will be sized and shaped to provide a much more efficient use of land for future industrial development within the city in conformance with the city's Community Development Plan.

3. Consequences

   a. Environmental - The Rock Creek Flood Plain is located on the west and north portions of the site area and can be engineered to provide more efficient and effective site and vicinity drainage when development occurs. The site area is not an identified open space or wildlife habitat and the inclusion within the Regional U.G.B. will not create any negative environmental consequences.

b. Energy - The proximity of the site to existing transportation facilities and all urban services and public utilities will promote the energy conscious use and development of the site within the Regional U.G.B. No negative impact will result from the Locational Adjustment.

c. Economic - The Locational Adjustment will create a more efficient development parcel and will lead to a better and more desirable economic benefit for Sherwood, Washington County and the metropolitan area. The more efficiently sized and shaped parcel when appropriately developed and used, will contribute more tax dollars. Use of existing services will also contribute to a better financed service system which will be more economically used. There will be no negative economic consequences resulting from the Locational Adjustment.

d. Social - Due to the present lack of development on the site, there will be no social consequences as a result of the Locational Adjustment.

4. Retention of Agricultural Land - The specific site area has never been in agricultural production. Soils information obtained from the Soil Conservation Service indicates that the soils are a combination of clays and clay loams, ranging from capability Class II to Unclassified. The soils are either wet or subject to erosion or both. The site area soils are quite gravelly and contain large stones and boulders not only at the surface but below the surface. A visual survey revealed that boulders up to three feet in diameter are present on the surface.

Soils mapping of the site did not occur from specific onsite investigation but from aerial photo interpretation and extrapolation of surrounding area soils associations. The Soil Conservation Service does not map units or areas under 10 acres in size on a site specific basis and will not review the

soils on this site. However, based on the soil types and particular characteristics of the area, the inclusion of the site area within the Regional U.G.B. will not adversely impact the agricultural use or potential of the balance of the property. The efficiency of land use and services in the area will be improved as a result of the Locational Adjustment without negatively impacting the retention of agricultural land.

5. Compatibility of Proposed Urban Uses with Nearby Agricultural Activities - The wooded character of the site will allow for effective perimeter buffering.

The only agricultural activity adjacent to the site area is on the same property directly to the north. The existing onion farm is owned by the applicant who desires to separate the farm from the non-farm area. The dwelling and non-farm area is proposed for inclusion within the Regional U.G.B., while the onion farm and farm related structures are specifically proposed to remain outside the U.G.B.

Any development activity on the site will be oriented southward toward Edy Road, away from the agricultural activity to the north. When combined with buffering and setbacks, there will be no adverse impact on nearby agricultural activities and the existing compatibility with agricultural uses will be retained.

E. Section 8, Item d., 2. of Ordinance 81-105

The only similarly situated contiguous land which could also be appropriately included within the Regional U.G.B. under a Locational Adjustment lies to the northeast of the subject site area. Although soils, physical characteristics and existing land uses are similar, the more direct proximity to agricultural activities on two sides, west and north, would create greater impacts on agricultural lands than the subject site. Properties to the west of Rock Creek,

although serviceable and adjacent to the Regional U.G.B., are currently in agricultural production. More importantly, these properties are not contiguous to the existing local U.G.B. or city limits. There is no similarly situated contiguous land which could also be appropriately included within the Regional U.G.B. and subsequently annexed into the city for future industrial development.

IV. SUMMARY

A. Findings of Fact

1. A portion of the site approximately seven acres, is currently within the Regional U.G.B.

2. The entire site, including the area within the Regional U.G.B. will be approximately 18.3 acres, and is contiguous to the existing local U.G.B. and city limits on both the south and east sides.

3. The site is programmed for sanitary sewer and water services, both of which will be provided in 1981.

4. The site has access to Edy Road (C.R. 1070) and the total site area, when combined with the area already within the Regional U.G.B., will have 1,070 feet of frontage on Edy Road.

5. The portion of the site currently within the Regional U.G.B. is designated on Sherwood's Community Development Plan for General Industrial use.

6. The entire site can be easily and effectively provided with all forms of urban services and necessary public utilities.

7. Existing Metropolitan Service District (METRO) and Unified Sewerage Agency (USA) boundaries are the same as the existing Regional U.G.B.

8. Existing Regional U.G.B., METRO and USA boundary placement creates an awkward and inefficient site which does not promote practical and rational land use and development.

9. The existing structures on the site are a single family dwelling and a garage.

10. None of the site has ever been in agricultural production. All agricultural activity occurs to the north on the balance of Tax Lot 100. All farm related structures will remain outside the adjusted U.G.B.

11. Soils range from Class II to Unclassified, but are characterized by wet clayey soils with a predominance of gravel, stones and boulders.

12. The Rock Creek Flood Plain includes the north and west portions of the entire site area, but constitutes less than 50 percent of the total site.

B. Conclusions

1. The current area within the Regional U.G.B. is poorly sized and shaped and cannot be used to maximum efficiency. The Locational Adjustment will create a properly shaped site for industrial purposes.

2. The Locational Adjustment will have no adverse impacts on the environment, social or urban services, energy provision or use and the economic framework of the area.

3. The soils on the site may be of questionable agricultural value, considering the physical characteristics.

4. The Locational Adjustment will not adversely impact any agricultural activities on surrounding properties. Through buffering and setbacks, any future development will retain compatibility with the agricultural character of the balance of the property.

5. The flood plain will not adversely impact the future development of the site.

6. When services become available to the site, the site can be more effectively and efficiently used if the Regional U.G.B. is adjusted and the site is annexed to the city.

7. Frontage on Edy Road will allow for a more feasible industrial development and use of the site area.

8. The Locational Adjustment of the Regional U.G.B. is logical, rational and complies with the criteria specified in METRO Ordinance No. 81-105.

STATUS OF PETITIONS RECEIVED FOR LOCATIONAL ADJUSTMENT OF THE UGB

Petition	Net Change Acres	Local Recommendation	Status of Metro Recommendation
81-3 Hillsboro	50	City is sponsor County supports	Approved
81-4 Seely	2	City & County support	Approved
81-5 WGK	30	City & County support	Approved
81-2 Clackamas Co.	9 (trade)	County is sponsor	Approved
81-8 Cereghino	11	City & County support	Development Committee recommends approval
Subtotal	102		
81-6 Portland	5 (trade)	City is sponsor County has no comment	Staff recommended approval; Hearings Officer recommends denial of all but 5 acre addition
81-7 Foster	12	County has not acted	
81-9 Corner Terrace	38	County opposes	Staff found standards not met; Hearings Officer recommends denial
81-10 Sharp	30	County has no comment	Staff found standards not met; Hearings Officer recommends approval

MEETING TITLE Regular Council Meeting

DATE February 4, 1982

NAME	AFFILIATION/ADDRESS
Beth Bluett	League Women Voters - OCs.
Bob Weil	Metropolitan Citizens League
Tom Warren	Forsythe Rd, Oregon City
Jim Johnson	Oregon City Commission

DATE February 4/82

TIME: 7:30 regular mtg.

MEETING - Call Sheet for Councilors - Reminder 4:30 mtg. with JS

		YES	NO	
Bob Oleson	224-4280	X ✓	—	X
Charlie Williamson	227-6784	X ✓	—	X
Craig Berkman	228-0700	—	X	out of town until Monday
Corky Kirkpatrick	244-6111	X ✓	—	X
Jack Deines	654-1449	X ✓	—	(gave m to reXcorder)
Jane Rhodes	771-6461	X ✓	—	X
Betty Schedeen	667-7153	X ✓	—	X
Ernie Bonner	231-9643	X ✓	—	X
Cindy Banzer	253-2915	X ✓	—	X
Bruce Etlinger	249-0916	X ✓	—	X
Marge Kafoury	248-3565	— MAYBE	—	No
Mike Burton	636-8141	X ✓	—	X

3 Andy J.
2 Andy C.
5 Dick L.
8 Caryl W.
Rick G.
1 Don C.
4 Sue K.
6 Tom O.
1 Sonnie R.

BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

A RESOLUTION IN MEMORY OF SUE JUBA	))	RESOLUTION NO. 82-306

WHEREAS, Sue Juba has long been an active, dedicated and respected citizen and friend who made outstanding contributions to the Portland area; and

WHEREAS, Sue was an active participant in the creation of Metro; and

WHEREAS, Sue passed away on January 28, 1982; now, therefore

BE IT RESOLVED:

That the Council of the Metropolitan Service District memorializes its deep regret over the passing of Sue and expresses its sympathy and best wishes to her family.

ADOPTED by the Council of the Metropolitan Service District this ____ day of _____, 1982.

_____
Presiding Officer

BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

FOR THE PURPOSE OF ENDORSING A REVISED EXPENDITURE PLAN FOR FISCAL YEAR 1982.	)))	RESOLUTION NO. 82-301 Introduced by the Coordinating Committee

WHEREAS, actual revenue to the General Fund for Fiscal Year 1982 is less than was anticipated on adoption of the Fiscal Year 1982 Budget; and

WHEREAS, the Council seeks to balance the Fiscal Year 1982 Budget.

NOW, THEREFORE, BE IT RESOLVED, that expenditures in the non-grant portion of the General Fund during the remainder of Fiscal Year 1982 shall not exceed the amounts indicated on the expenditure plan identified as Table "B" and attached hereto.

BE IT FURTHER RESOLVED, that the Special Finance Task Force of the Council shall work with the Executive Officer to return to the Council with recommendations for an adequate contingency at the end of Fiscal Year 1982.

ADOPTED by the Council of the Metropolitan Service District this ____ day of _____, 1982.

_____
PRESIDING OFFICER

LE B

REVISED NON-GRANT
GENERAL FUND EXPENDITURES
FOR FY 82

	FY 82 Budget	Actual Expenditures 7/1-12/31	January Est.	PROJECTED EXPENDITURES February	March	April	May	June	Total Year
Council									
Personnel Services	29,137	14,877	2,480	2,573	4,332	4,332	4,332	4,332	37,258
Materials & Services	53,920	19,709	3,285	2,485	2,485	2,485	2,485	2,485	35,419
Capital Outlay	1,000	281	46	0	0	0	0	0	327
Subtotal	84,057	34,867	5,811	5,058	6,817	6,817	6,817	6,817	73,004
Executive Management									
Personnel Services	263,447	126,634	21,106	16,977	16,998	16,998	16,998	16,998	232,709
Materials & Services	36,308	21,427	3,571	0	0	0	0	0	24,998
Capital Outlay	1,000	850	142	0	0	0	0	0	992
Subtotal	300,755	148,911	24,819	16,977	16,998	16,998	16,998	16,998	258,699
Futures									
Personnel Services	8,982	11,584	0	0	0	0	0	0	11,584
Materials & Services	2,500	1,647	0	0	0	0	0	0	1,647
Capital Outlay	0	0	0	0	0	0	0	0	0
Subtotal	11,482	13,231	0	0	0	0	0	0	13,231
Public Affairs									
Personnel Services	285,034	146,649	24,442	20,299	15,369	15,369	15,369	15,369	252,866
Materials & Services	83,713	23,850	3,975	710	710	710	710	710	31,375
Capital Outlay	0	0	0	0	0	0	0	0	0
Subtotal	368,747	170,499	28,417	21,009	16,079	16,079	16,079	16,079	284,241
Management Services									
Accounting									
Personnel Services	211,753	113,066	18,844	15,353	15,353	15,415	15,415	15,415	208,861
Materials & Services	84,932	134,562	22,427	3,800	3,800	3,800	3,800	3,800	175,989
Capital Outlay	0	0	0	0	0	0	0	0	0
Subtotal	296,685	247,628	41,271	19,153	19,153	19,215	19,215	19,215	384,850
Personnel & Support									
Personnel Services	140,646	81,214	13,536	12,406	12,406	12,468	12,468	12,468	156,966
Materials & Services	550,300	305,045	50,841	39,365	39,365	39,365	39,365	39,365	552,711
Capital Outlay	1,400	1,723	287	0	0	0	0	0	2,010
Subtotal	692,346	387,982	64,664	51,771	51,771	51,833	51,833	51,833	711,687
SUBTOTAL	1,754,072	1,003,118	164,982	113,968	110,818	110,942	110,942	110,942	1,725,712
Grant Match									
Transportation	-	45,648	-	-	-	-	-	47,121	92,769
Joint Development	-	15,162	-	-	-	-	-	6,738	21,900
Special Projects	-	18,317	-	-	-	-	-	11,361	29,278
Land Use & Coordination	-	735	-	-	-	-	-	1,898	2,633
Criminal Justice	-	17,134	-	-	-	-	-	27,866	45,000
Subtotal	-	96,996	-	-	-	-	-	94,984	191,980
Discretionary									
Transportation	-	36,500	-	-	-	-	-	6,481	42,981
Joint Development	-	17,905	-	-	-	-	-	-	17,905
Special Projects	-	137	-	-	-	-	-	-	137
Land Use & Coordination	-	10,572	-	-	-	-	-	-	10,572
Subtotal	-	65,114	-	-	-	-	-	6,481	71,595
Contingency	442,730								23,379
GRAND TOTAL		$1,165,228							$2,012,666

BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

RESOLUTION FOR INTRODUCTION AT)
METRO COUNCIL MEETING OF)
FEBRUARY 4, 1982)

WHEREAS, Metro has now been in existence for three years; and

WHEREAS, Every public organization should take stock of itself at least every three years, and events of the recent past have added impetus to such a review; and

WHEREAS, The Metropolitan Citizens' League has indicated by its actions since formation both an interest in and an independence from Metro in its activities; now, therefore,

BE IT RESOLVED,

1. That the Metro Council requests that the Metropolitan Citizens' League review both the promise and the performance of Metro with a view to recommending ways to improve Metro's fundamental governing structure as set forth in the State statutes.

2. That the Council requests that a series of recommendations be forwarded to the Council as early as possible and certainly no later than July 1, 1982.

EB/gl

5232B/107

BEFORE THE COUNCIL OF THE
METROPOLITAN SERVICE DISTRICT

A RESOLUTION ESTABLISHING BUDGET CONTROL PROCEDURES	)))	RESOLUTION NO. Introduced by

WHEREAS, It is appropriate for the Council to establish control procedures for the Metropolitan Service District (Metro) budget; now, therefore,

BE IT RESOLVED,

1. That financial records of Metro shall be closed on or before August 15 annually and a report of cash balances shall be provided to the Council.

2. That the Executive Officer shall take all steps necessary to have all financial records available to expedite annual independent audit of Metro financial records. A report on the status of each audit shall be provided to the Council at the first meeting each November.

3. That appropriate measures, within the constraints of State law and "prudent man" investment criteria, shall be taken to maintain the highest earnings on invested Metro funds. The balances of invested funds and earnings shall be reported quarterly to the Council.

4. That quarterly financial reports shall be provided the Council which include, but are not necessarily limited to, the following information:

- expenditures and revenues to date;
- federal and state grant status reports, including increases and decreases in budgeted

grant revenues;

- cumulative savings in personal services and materials and services resulting from vacancies in authorized staff positions; and
- investment report.

5. That the Council shall, if necessary, make appropriate transfers between operating and contingency funds based on information received in the quarterly financial reports.

6. That the Executive Officer shall include in each annual budget sufficient funds to implement the provisions of this resolution.

7. That this resolution shall be reviewed annually by the Council Coordinating Committee to determine the effectiveness and necessity for continuation of the provisions of this resolution.

ADOPTED this _____ day of _____, 1982.

_____
Presiding Officer

AJ/gl
5236B/107

Sue

METRO COUNCIL

Special Task Force on Fiscal Management

1. Rex Bybee, CPA - Chair — Office Phone: 297-1622
   The Pringle Company
   6415 S.W. Canyon Court
   Portland 97221

   · Partner in The Pringle Company, Management Consulting firm
   · Formerly with Arthur Young & Company

2. Ken Jones, President — Office Phone: 292-3560
   Performance Management Associate
   9530 S.W. Washington
   Portland 97225

   · Director of Management & Budget for the City of Portland for 7 years
   · Masters in Government Administration from the Wharton Graduate School

3. Hank Laun, CPA — Office Phone 226-1331
   Arthur Anderson & Company
   111 SW Columbia, Suite 1400
   Portland 97201

   · Partner-in-charge, Consulting Division of Arthur Anderson & Company
   · Formerly spent 3 years in auditing with " " "
   · Harvard Business School, MBA

4. Suzanne McGrath, CPA ✓ — Office Phone 222-6414
   Lang, Glassgow, McGrath & Company, P.C.
   1700 S.W. 4th, Suite 101
   Portland 97201

   · Current owner of certified public accounting firm
   · ormerly with national CPA firm
   · Oregon Society of Certified Public Accountants, Board of Directors

5. Jeanne Staehli, CPA — Office Phone 248-4800
   Portland Development Commission
   1500 S.W. 1st Street
   Portland 97201

   · Chief accountant for Portland Development Commission
   · Internal auditor, Public Utility Commission
   · Operations auditor, Multnomah County Auditor's Office
   10 years with Laventhol & Horwath

6. Al Steiger, Treasurer Office Phone 222-0339
First Far West Corporation
P.O. Box 4162
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- Formerly spent 11 years with Touche, Ross & Co-Partners - Accounting Firm

7. Don Williams, Business Manager Office Phone 224-4280
Oregon State Bar
1776 S.W. Madison
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- Formerly Administrative Analyst for Clackamas County Commissioners
- Active in Portland City Club

CB:tj

1-28-82
Council mtg.

December 16, 1981

PORTLAND
STATE
UNIVERSITY
p.o. box 751
portland, oregon
97207
503/229-3851

department
of biology

TO: House Interim Committee on
Environment and Energy

Dear Representatives:

I am concerned about the possibility of changing the minimum size requirements for Energy Facility Siting Council (EFSC) review. In particular, I feel the presently mandated requirements are necessary to help provide adequate protection to public health and safety particularly in the siting and operation of municipal solid waste fueled electrical generating facilities. Such generating facilities require the most thorough possible review.

Although municipal solid waste fueled electrical generating facilities may provide a variety of benefits, their potential for harm to the public health is so much greater than any other fuel source that they appropriately require more stringent regulatory treatment, control, and monitoring. I would be particularly concerned about air pollution resulting from fine particulates bearing toxic heavy metals (mercury, lead, cadmium) concentrated from the waste fuel as well as toxic organic molecules synthesized in the combustion process (especially the dioxins). In addition, fly ash collected in the pollution control systems needs special care when disposed of as solid waste, because it is likely to contain much more significant toxic material than comparable material from more convential generating facilities.

Sincerely,

Trygve P. Steen

Trygve P. Steen, M.P.H., Ph.D.
Associate Professor of Biology

Copy to Jim Johnson

DIVISION OF
ENVIRONMENTAL MEDICINE

Area Code 503 225-8415

Portland, Oregon 97201

UNIVERSITY OF OREGON

HEALTH SCIENCES CENTER

January 18, 1982

Representative Wayne Fawbush, Chairman
House Interim Committee on Environment
& Energy
H-193, State Capitol
Salem, Oregon 97310

Dear Representative Fawbush:

I hope you will accept this letter as testimony for the public hearing on House Bill 3295 which would exempt garbage burner facilities from energy site certificate requirements.

For almost three years I have followed the controversy between the Metropolitan Service District who needs to solve its serious refuse disposal problems and a group of Oregon City residents who fear air pollution and health hazards. I have testified on these matters on two previous occasions. (I believe that the fears of the Oregon City residents are reasonable and prudent and that the leadership of the Metropolitan Service District has failed to give due consideration to the risks of health impairment and to the likelihood of regulatory problems in managing the input and the performance of the proposed facility.)

Part of the Metropolitan Service Districts problem has been that they have received faulty advice from the U. S. Environmental Protection Agency. For example, a November, 1981 EPA paper entitled "Interim Evaluation of Health Risks Associated with Emissions of TCDDs from Municipal Waste Resource Recovery Facilities" actually used a scientifically untenable extrapolation of animal experiment dose levels to human community exposures! The effect of that error would be to vastly underestimate human health risks. It was an error that would not have been made by a competent scientist, and it is significant that the paper did not indicate the author's name.

I anticipate serious problems in monitoring the input (keeping out hazardous wastes) and the performance (keeping the burning temperature at the proper level) because these responsibilities will be delegated to a private contractor. The operating system needs to incorporate a system of checks to insure that safeguards are actually working.

The attempt to allow this proposed resource recovery facility to be exempt from energy site certificate requirements may seem to be a move toward expediting solution of waste disposal problems, but it carries with it the hazard of ignoring the very real possibilities for promotion of long-range toxic human health problems. I urge you to leave the requirements for energy site certification intact. (It would be prudent to request DEQ and the State Health Division to jointly establish an expert health effects panel to formally review the potential health problems and to recommend

methods by which they could be minimized. This would be the due process to which the Oregon City residents are entitled and could quell the controversy. Such a panel should have been convened a long time ago because its opinion would be useful on other similar occasions in the future.

I would be happy to answer any questions on this or other matters. The opinions expressed in this letter were personal and do not represent institutional positions.

Respectfully,

Wm Morton

William E. Morton, MD, DrPH
Professor

WEM:pj

UNIVERSITY OF UMEÅ
Department of Organic Chemistry
Christoffer Rappe, Mj

1981-12-15

Mr. James L. Johnson, Jr.
Oregon City Commissioner
1110 16th Street
Oregon City, OR 97045
U.S.A.

Dear Mr. Johnson,

Many thanks for your letter of December 8. It is interesting to study the enclosed US EPA document.

In my opinion this risk evaluation has a too narrow approach to the problem, narrow in that sense that all interest is concentrated to the 2,3,7,8-tetra-CDD isomer. In our fly ash analyses this isomer is
./. always a very minor constituent, see enclosed copy.

My position is that an acceptable risk evaluation should be based on the occurrence of all dioxins and dibenzofurans in the incinerator effluents: fly ash, flue gas, particulate and aerosols. As a first approach an evaluation should be based on those isomers which are considered to be "highly toxic"
2,3,7,8-tetra-CDD
1,2,3,7,8-penta-CDD, which is just as toxic as the 2,3,7,8-tetra-CDD
2,3,7,8-tetra-CDF, about 5 times less toxic than 2,3,7,8-tetra-CDD
1,2,3,7,8-penta-CDF and
2,3,4,7,8-penta-CDF both also about 5 times less toxic than 2,3,7,8-tetra-CDD

The analytical data in the EPA document is given without describing the sampling technique and the analytical technique used. Consequently it is completely impossible to evaluate the data.

The amount of dioxin and dibenzofuran emissions from an incinerator is dependent on the
a) construction of the incinerator
temperature
residence time
excess of air

Nothing is known to me concerning the construction of the incinerators investigated in the EPA study or the planned incinerator in Oregon City. Consequently it is impossible for me to know how the relevance of the EPA data.

b) the material being burned
chlorinated phenols are precursors to dioxines
PCBs are precursors to the dibenzofurans

From your letter I understand that you are afraid that in the Oregon City incinerator you could find pentachloro phenolcontaminated waste.

I am not very familiar with the title "Comissioner", consequently it is very difficult for me to advice you what to do. From my comments above it is evident that I am not very satisfied with the EPA document, too much is missing. If you can get more data it is easier for me to review the data.

I understand that is is quite difficult for you to collect fly ash, particulate or air samples. Perhaps you could consider the possibility to collect soil samples taken in the vicinity of incinerators or boilers where waste containing high levels of pentachlorophenol is being burned.

I hope my comments can be of use for you.

Cordially

Christoffer Rappe

Christoffer Rappe, professor

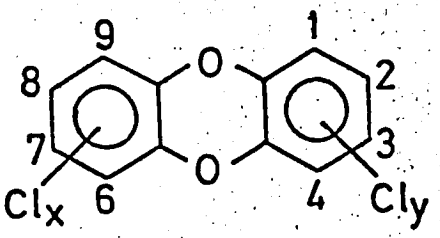
POLYCHLORINATED DIOXINS AND DIBENZOFURANS IN INCINERATOR EFFLUENTS

Christoffer Rappe
Department of Organic Chemistry, University of Umeå
S-901 87 Umeå, Sweden

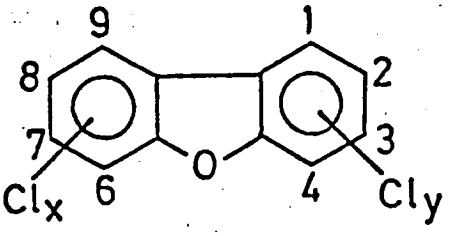
and

Hans Rudolf Buser
Swiss Federal Research Station
CH-8820 Wädenswil, Switzerland

Polychlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs) are two series of tricyclic aromatic compounds with similar chemical, physical and toxicological properties (for structures, see below). In all, there are 75 PCDD and 135 PCDF isomers ranging from the mono- to the octachloro compounds. Some of these compounds have extraordinary toxicological properties. Toxicity seems to depend highly on the number and position of the chlorine substituents; 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-tetra-CDD) and 1,2,3,7,8-penta-CDD and the corresponding dibenzofuran analogues (2,3,7,8-tetra-CDF, 1,2,3,7,8- and 2,3,4,7,8-penta-CDF) have been reported to be the most toxic isomers, the LD_{50}-values are in the range 1-10 µg/kg (1,2,3).



PCDDs



PCDFs

In addition to acute toxic effects, the most toxic PCDD isomers also have chronic toxic effects as well as teratogenic, mutagenic and carcinogenic effects (4,5,6). Because they are both chemically and biologically stable as well as lipophilic in nature, they have a tendency for bioaccumulation and consequently they present a threat for man and the environment.

Emissions from municipal waste incinerators, heating facilities and thermal power plants have long been the subject of public concern. Whereas previously the emission of dust, smoke, toxic metals and noxious gases was of prime concern, the presence of potentially hazardous organic compounds has only recently been reported. In 1977 Lahaniatis et al., reported on the finding of chlorinated organic compounds in the fly ash of a municipal incinerator. The compounds detected were chlorinated aliphatics, benzenes, pesticides and PCBs (7).

Also in 1977, Olie et al., reported on the occurrence of PCDDs and PCDFs in the fly ash of three municipal incinerators in the Netherlands. Their results indicated the presence of up to 17 PCDD isomers, but no quantifications or isomer

identifications were given (8).

At about the same time, we were engaged in an investigation on the occurrence of PCDDs, PCDFs and other chlorinated compounds in fly ash and soot of an industrial heating facility in Switzerland. Later the studies were expanded to include fly ash of a larger municipal incinerator. The analyses were carried out by high-resolution GC and mass spectrometry allowing identification and quantification of the major PCDD and PCDF components (9,10,11).

Incinerators produce different products like bottom ash or slag, fly ash from the electrostatic precipitators, flue gas and particulates from the smoke stack. Modern incinerators generally are equipped with electrostatic precipitators in which 98% or more of all particulate matter is retained. Due to sampling difficulties fly ash samples have been much more frequently analyzed than the other products from the incinerators.

A wide variety of extraction methods has been used to elute PCDDs and PCDFs from fly ash samples, the highest recovery being reported for toluene extraction in a Soxhlet apparatus of acid treated material (12). After the solvent has been evaporated the residue is purified by column chromatography prior to the GC/MS analysis (9,10,11). The quantitative results are normally given in terms of group of isomers with the same number of chlorine atoms (a profile), and in Table 1 we have collected a few analyses of samples of bottom ash, fly ash and particulate.

For a toxicological evaluation of PCDDs and PCDFs in incinerator effluents, the presence and quantities of specific isomers need to be established due to the large variation in toxic effects of closely related compounds in the two series. We have previously reported on the identification of the major PCDD components in two fly ash samples (10). These samples were from the electrostatic precipitator of a municipal incinerator and from the stack exit of an industrial heating facility. In these samples over 30 PCDDs were observed ranging from the tetrachloro to the octachloro compounds. In spite of the different origin and chlorine profile, the two samples showed an almost identical pattern of PCDDs.

In Figure 1 we have given typical traces for the tetra-, penta- and hexachlorodioxins found in a fly ash sample. We found that the major isomers were those formed in the pyrolytic dimerization of the most common chlorophenates namely 2,4-di, 2,4,6-tri-, 2,3,4,6-tetra- and pentachlorophenate.

The main tetra-CDDs were the 1,3,6,8- and 1,3,7,9-substituted isomers, the dimerization products of 2,4,6-trichlorophenol. An additional peak present in larger quantities was 1,2,3,7- or 1,2,3,8-tetra-CDD, expected condensation products of 2,4-di- and 2,3,4,6-tetrachlorophenate. We have identified up to 16 of the 22 tetra-CDD isomers. Of special importance is the observation that the highly toxic 2,3,7,8-isomer was only a minor constituent; much less than 1% of the total amount of all tetra-CDDs (13).

Among the penta-CDDs we can observe up to 12 of the theoretically possible 14 isomers, see Figure 1. The three main penta-CDDs found in the fly ash samples were 1,2,4,6,8- or 1,2,4,7,9-, 1,2,3,6,8- and 1,2,3,7,9-penta-CDD. These isomers are formed in the mixed pyrolysis of 2,4,6-tri- and 2,3,4,6-tetrachlorophenate. Additionally, 1,2,3,4,7-penta-CDD was present as a medium peak, this compound is the condensation product of 2,4-di- and pentachlorophenate. Another medium component is the highly toxic 1,2,3,7,8-penta-CDD. However, this isomer is a major component in fly ash and other pyrolysis products from incineration of products containing pentachlorophenate (14).

Among the hexa-CDDs in fly ash we can observe 8 of the theoretically possible 10 isomers, see Figure 1 and reference 10. The major component was the 1,2,3,4,6,8--hexa-CDD, a condensation product of 2,4,6-tri- and pentachlorophenate. The 1,2,3,6,7,8- and 1,2,3,7,8,9-hexa-CDDs, which are considered as the most toxic of the hexa-CDDs are present as minor components. Both hepta-CDDs and octa-CDD were present as well.

These findings strongly suggest commercial chlorophenols as the precursors to the PCDDs found in various samples of fly ash. In general the known highly toxic dioxin isomers were present only as minor constituents.

It has been suggested that PCDDs, including 2,3,7,8-tetra-CDD can be generated by a pyrolytic de novo formation from carbon and chlorides (16). However, as discussed earlier, the experimental data available strongly indicate that the dominating part of the PCDDs found originate from chlorinated aromatics used as industrial chemicals, the chlorinated phenols being the major source (17,18). In this connection it can also be pointed out that attempts to identify dioxins in emmissions from coal-fired power-plants have failed (19). Moreover, no dioxins could be found in soot produced by combustion of methane spiked with dichloromethane and with hydrogen chloride (20).

We have also reported on the identification of the PCDF isomers in the two fly ash samples discussed above. As in the case of the PCDD isomers, the two samples showed a remarkable similarity in the pattern of the PCDF isomers present. Most of these isomers were also formed in the pyrolysis of commercial PCBs (Aroclor 1254 and 1260) strongly suggesting these commonly used products as the precursors to the PCDFs in fly ash. In this study over 60 different PCDF isomers were observed ranging from the tri- to the octachloro compounds (11).

In Figure 2 we have given typical traces of the dibenzofurans found in the fly ash samples. The isomers present did include the very toxic 2,3,7,8-tetra-, 2,3,4,7,8- and 1,2,3,7,8-penta-CDFs. Contrary to the PCDDs, the most toxic PCDF isomers were present in fly ash samples as major PCDF constituents.

The environmental impact of the PCDDs and PCDFs found in fly ash and other incinerator effluents is unclear. However, specific isomers mainly the most toxic of both PCDDs and PCDFs have been found at ppt levels in a variety of environmental samples. In addition to samples with point sources of PCDDs, mainly 2,3,7,8--tetra-CDD (Tittabawasse River, Great Lakes) and PCDFs (Hudson River) we have observed a set of samples with a "general industrialized background." In these samples the level of PCDDs is about the same as the level of PCDFs, and the level of 2,3,7,8-tetra-CDD is about the same as the level of 1,2,3,7,8-penta-CDD (21).

It cannot be excluded that incineration products like fly ash and flue gases could contribute to the levels of PCDDs and PCDFs found in environmental samples. Especially the frequent observation trace amounts (1-10 ppt) of 1,2,3,7,8-penta--CDD can support this hypothesis. 1,2,3,7,8-Penta-CDD is a coumpound, which up to now never has been found as an impurity in any commercial product. To our knowledge fly ash and other incinerator products seems to be the only reported environmental source of this compound.

Top

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Table 1. Quantitative data of analyses of PCDDs and PCDFs in fly ash (ppb).

	Municipal waste (12)		Industrial	Municipal	PCP treated material	
	fly ash[a)]	particulate	fly ash	fly ash	fly ash	bottom ash
Tetra-CDDs	54	100	400	3	960	10
Penta-CDDs	182	800	1400	20	1400	20
Hexa-CDDs	326	1370	1000	50	2000	40
Hepta-CDDs	288	1370	300	180	600	100
Octa-CDD	106	310	150	210	200	140
Tetra-CDFs	111	460	180	9	900	< 5
Penta-CDFs	196	960	530	23	1500	< 5
Hexa-CDFs	361	1600	350	50	140	< 5
Hepta-CDFs	177	1130	300	250	60	< 5
Octa-CDF	18	140	20	135	6	< 5

a) Mean values of 80 analyses (12)

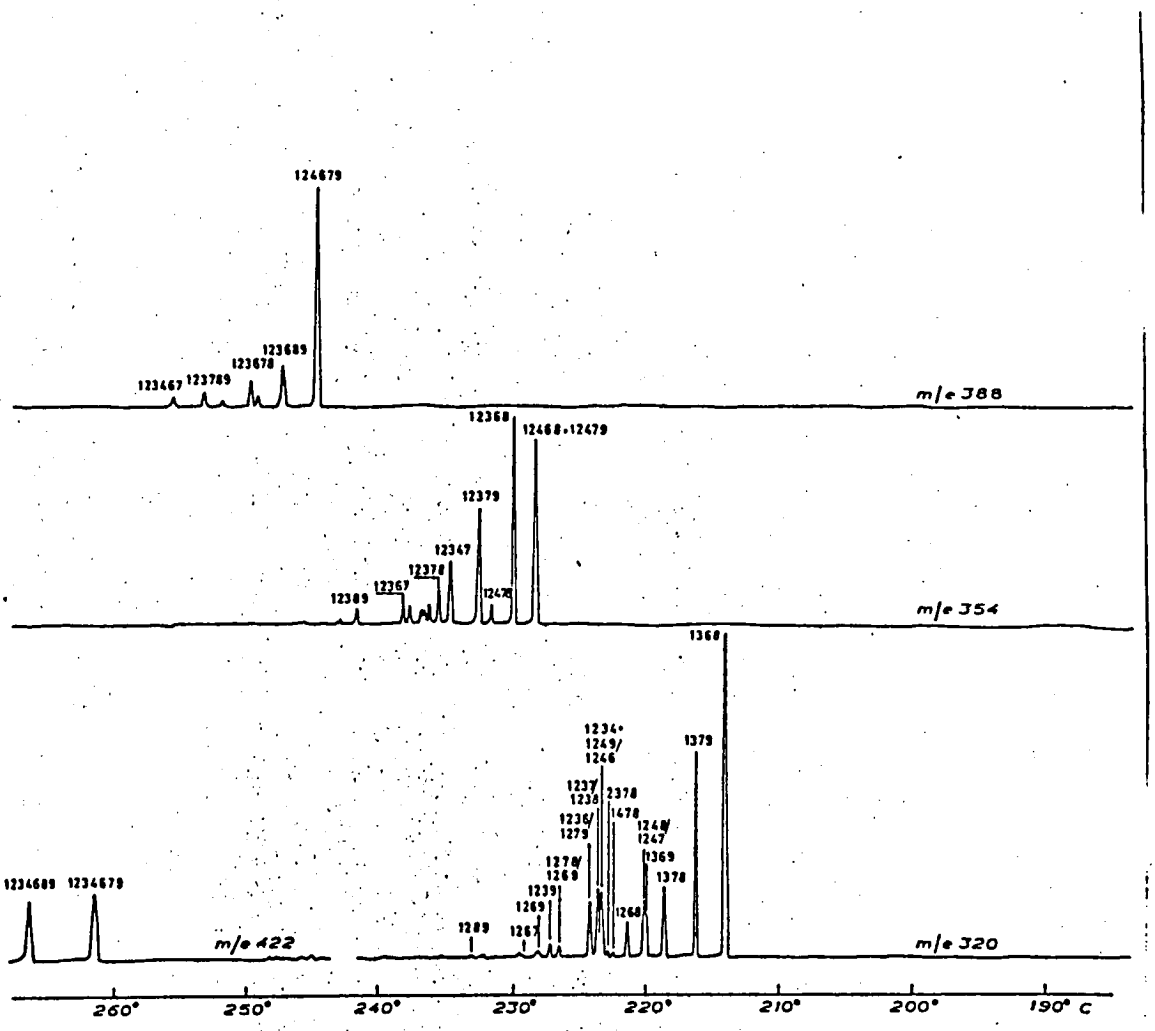

Figure 1. Mass fragmentogram of tetra-, penta-, hexa- and hepta-CDDs from a fly ash sample.

Top

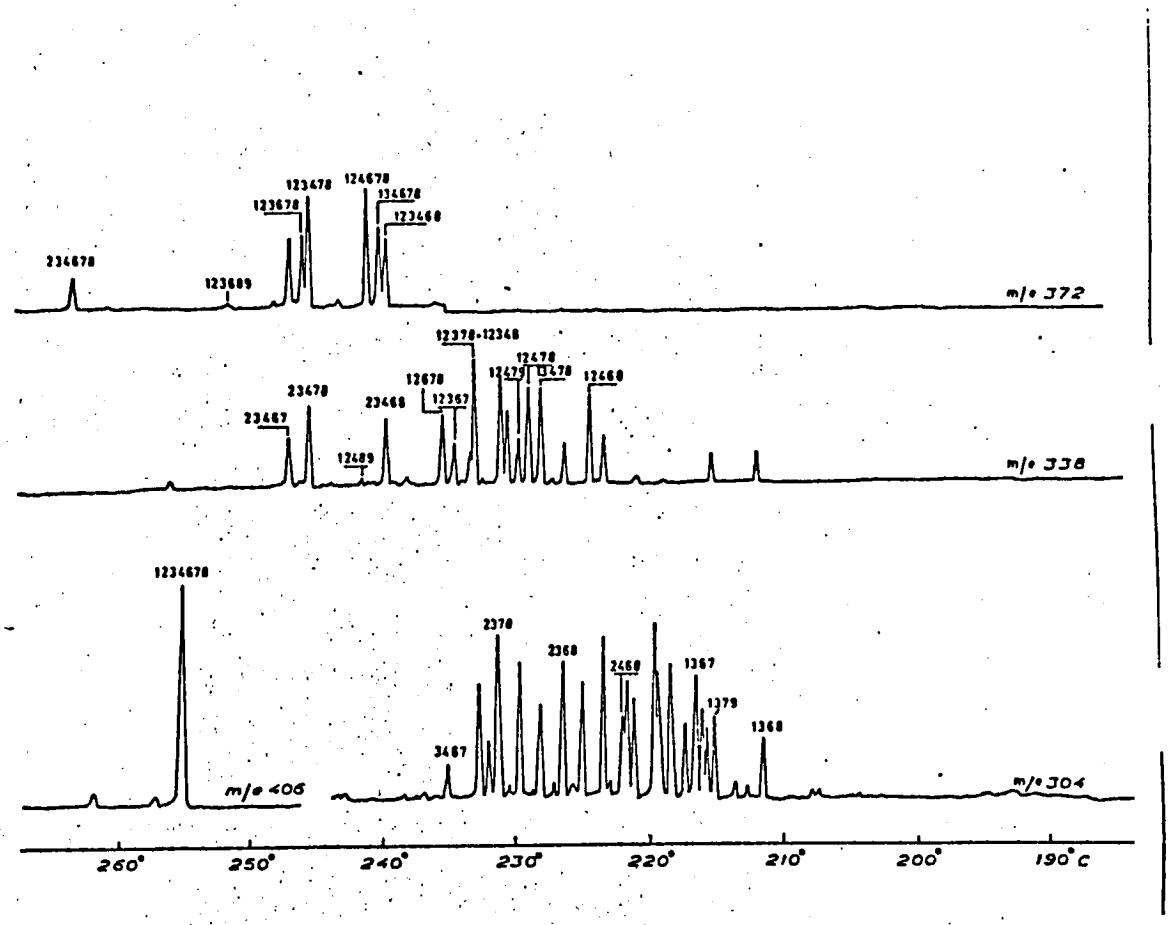

Figure 2. Mass fragmentogram of tetra-, penta-, hexa- and hepta-CDFs from a fly ash sample.

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