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14 December 2011

David White
Resource Development
Benedict Industries Pty Ltd.
VIA EMAIL: davidw@benedict.com.au

RE: Air Quality Assessment for the Proposed Construction and Operation of the Georges Cove Marina.

Dear David,

Todoroski Air Sciences have completed an air quality assessment for the proposed construction and operation of Georges Cove Marina. The assessment responds to the OEH requirements for issued on 17 June 2011, ref: 11/09055. This letter report provides the findings of the assessment and outlines our recommendations to minimise any potential air quality impacts.

1 PROJECT BACKGROUND

Benedict Industries Pty Ltd proposes to construct a marina and related facilities on part of Lot 7 DP 1065574 (146 Newbridge Road, Moorebank), which is a 22 hectare site adjoining the Georges River (see **Figure 1**).

The proposed site is surrounded by residential dwellings to the east and west, industrial facilities to the north and parks to the south. The nearest residence is located approximately 200m to the west of the proposed site boundary. The local topography of the project area is relatively flat.

The existing tree barriers between the proposed development and nearby residential dwellings may help in minimising the potential dust and odour nuisance associated with the proposed operations and may therefore be advantageous to the project.

Figure 1 and **Figure 2** present an aerial view of the project location and proposed site layout.

The site is currently utilised for sand extraction/dredging/recycling operations. The proposed development will utilise the existing sand extraction and dredge pond as the basis for the final marina basin and will comprise the following main elements:

- The Maritime Building located near the western boundary of the site which includes a dry berth facility, a function centre with associated kiosks, tourist, entertainment and club facilities;
- Wet berth facility;
- Three car parks; and
- Private Marina Club House.

Figure 1: Location of the proposed development

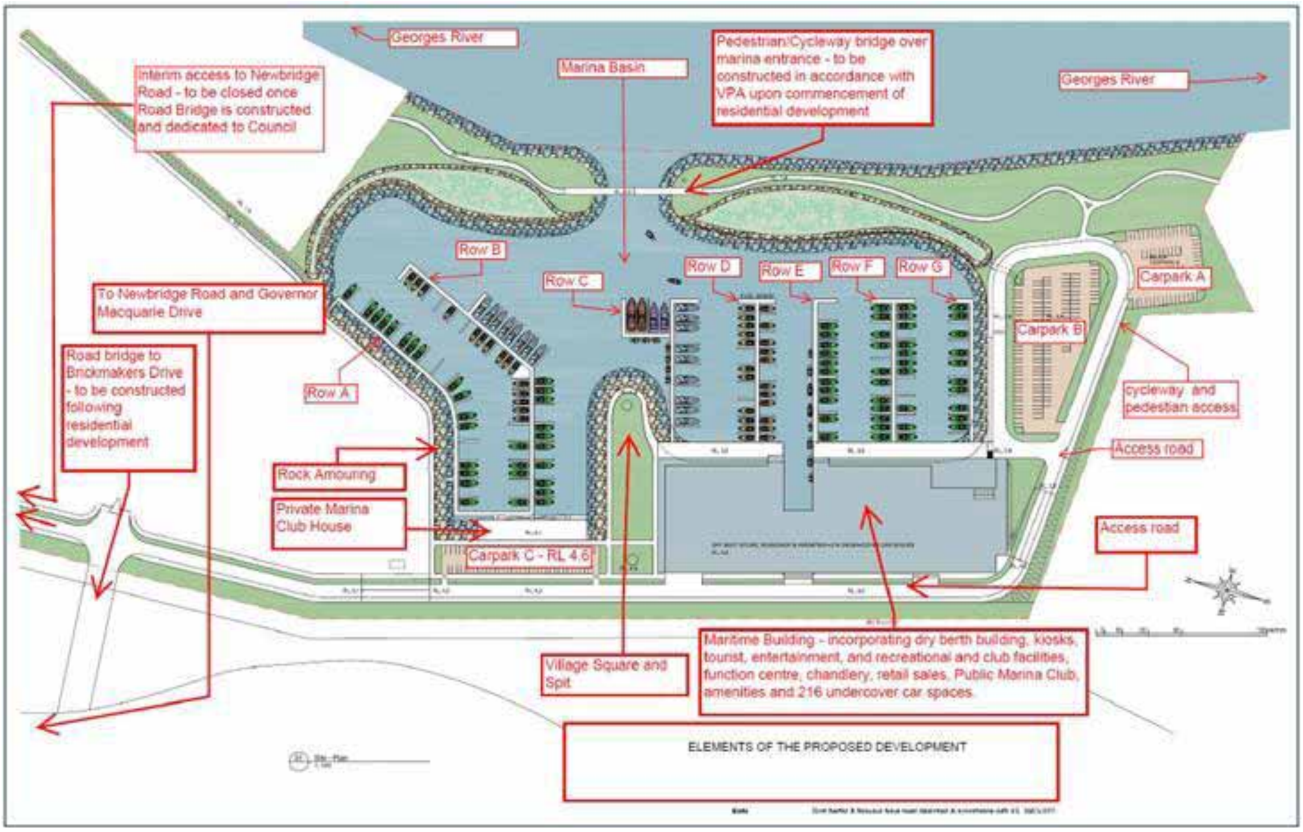


Figure 2: Site layout

2 POTENTIAL EMISSIONS AND MITIGATION MEASURES

The following sections describe the potential air emissions and the appropriate control measures that may be required during the construction and operation of the proposed development. The operational control measures are based on the best practice control guidelines as presented in the NSW Office of Environment and Heritage (NSW OEH) document "Environmental Action for Marinas, Boatsheds and Slipways" (**DECCW 2007**).

2.1 General Construction

Dust particulates are the primary pollutants generated during the construction phase of the proposed development. The marina basin is currently under construction through the existing sand extraction operations, which will continue to create large ponds. It is proposed to construct the marina using conventional land based plant and equipment such as excavators and trucks, (as well as a dredge), which are currently in use to win material on the site. The main construction activities associated with the proposed development include construction of hardstand, installation of piling, pontoon units and services and access gangways.

The majority of these activities are likely to occur within the water or in low-lying areas with naturally high soil moisture content leading to minimal dust emissions during the construction phase. Management of the excavation/construction works includes minimising the total area of disturbance and the exposure time of any disturbed areas and use of adequate watering on dusty areas. All construction activities will occur in daytime hours (7:00am to 5:00pm) which are likely to have favourable meteorological conditions for dispersion.

Given the above, the current use of the site and the significant separation distances to receptors, it is not anticipated that any tangible increase in dust levels would arise from construction activities.

2.2 Operations

The potential pollutants released to the atmosphere from the proposed marina operation are dust and volatile organic compounds (VOC's) associated with the on-site fuel and waste handling operations and boat maintenance activities. Other fugitive emissions including combustion emissions (NO_x, SO_x and CO) from onsite equipment usage and operation are minor and unlikely to have any significant impact on the local air quality.

The following sections discuss the application of best practice mitigation measures for this marina to minimise the potential impact to the local air shed.

2.3 Petrol Sales

Petrol sale operations are sources of VOC's, the marina will install vapour recovery systems at on-site petrol distribution systems to minimise the volatile emissions.

2.4 Sewage Pump

The sewage pump out operations that discharge sewage from boat to the existing sewer connections on the site will be enclosed and the provision of holding tanks was excluded in the proposed sewage pump out system design to minimise odour potential.

In addition, the following mitigation measures will be considered to avoid any potential odour nuisance.

- Storage of the pump out nozzle in a receptacle that incorporates a drip tray while not in use;
- Clean out drip trays and hoses at the sewage pump out facilities regularly;
- Prohibition of flushing heads on craft while craft are at the berth; and
- Prohibition of pumping bilge water while craft are at the berth.

2.5 Workshop

The proposed workshop for boat maintenance is relatively small (<240m^2) and is designed for servicing up to four small boats at any given time; maintenance works will be limited to small boats only. The workshop is comparable to a small-scale automotive workshop or a small suburban smash repairer; however, it is located more than 200 meters from receptors.

To minimise the potential dust emission from boat maintenance operations, the following mitigation measures will be considered.

- Fit sanders with a dust bag or extraction system;
- Conduct all maintenance works within the enclosed workshop;
- Keep work areas tidy, regularly sweep or vacuum; and,
- Ensure all wastes generated from abrasive blasting are contained and collected.

2.6 Paint Operation

VOC's and odour may be released during paint operations. To minimise the impact at surrounding areas all significant paint works will be conducted under enclosed conditions in a paint booth and VOC's from paint operation will be released to the atmosphere via a small stack. In addition, the following best practice mitigation measures are recommended to minimise any potential impact on local air quality.

- Paint with in order of preference rollers or brushes, airless spray guns and high volume low pressure spray guns;
- Store drums, brushes and containers of resin and other chemicals in a bunded and covered storage area;
- Place fibreglass off-cuts that cannot be used in production or the repair job in sealed plastic bags before disposal;
- Take care when decanting resin; and,
- Seal storage containers immediately after use.

3 AIR QUALITY CRITERIA

Relevant air quality criteria for the potential pollutants are presented in the following table (**DEC 2005**).

Table 1: Relevant air quality criteria

Pollutant	Averaging period	Unit	Criteria
PM_{10}	24 hour	µg/m³	50
	Annual	µg/m³	30
Dust deposition	Annual	g/m²/month	4
CO	15 minutes	mg/m³	100
	1 hour		30
	8 hours		10
NO_2	1 hour	µg/m³	246
	Annual	µg/m³	62
Acetone	1 hour	mg/m³	22
Cyclohexane	1 hour	mg/m³	19
Ethyl acetate	1 hour	mg/m³	12.1
Ethylbenzene	1 hour	mg/m³	8.0
Methyl ethyl ketone	1 hour	mg/m³	3.2
Methyl isobutyl ketone	1 hour	mg/m³	0.05
Styrene	1 hour	mg/m³	0.12
Toluene	1 hour	mg/m³	0.36
Xylene	1 hour	mg/m³	0.19

4 IMPACT ASSESSMENT

4.1 Dust and Particulate Matter

Analysis of the dust generating activities for the proposed operation reveals only some occasional sanding and therefore no major dust generating activities that could significantly elevate particulate levels in the local air shed. With the application of the best practice mitigation measures outlined in **Section 2**, it is unlikely that the proposed operation would cause any significant increase in the ambient particulate/dust level in the local air shed or cause any exceedences of particulate/dust deposition criteria, presented in **Table 1**.

4.2 Odour

Odour emissions from sources such as painting and sewage pump out facility will be relatively small. It is in the commercial interests of the Marina to offer a high level of amenity to users, and therefore measures will be applied control odour. With the application of the best practice mitigation techniques outlined in **Section 2.2**, it is unlikely that the proposed operation will cause any odour nuisance in the surrounding areas. (Odour based impact assessment criteria for VOC emissions are considered in **Section 4.3**).

4.3 Volatile Organic Compounds

Petrol sales have the potential to generate VOC emissions. However, these will be controlled through the mitigation measures referred to in **Section 2.2**. Therefore, there is unlikely to be any significant impact in the surrounding areas from the petrol sales operations.

VOC emissions from paint operations depend on the paint type, usage and releasing mechanism. This assessment assumes that all paint works occur in enclosed conditions (i.e. in a paint booth) and that mixed air (air and volatiles) from the paint booth are exhausted via a small stack.

To examine the potential impact that may arise at nearest receptors, a level 1-impact assessment was conducted using 'synthetic' worst-case meteorological data and worst-case emission rates. Dispersion modelling was conducted using the OEH approved AUSPLUME dispersion model. Worst-case emission rates for each VOC species of interest are calculated based on National Pollutant Inventory (NPI) emission factors for shipbuilding (**NPI 1999a**) and fibreglass product manufacturing (**NPI 1999b**). **Table 2** presents the stack modelling parameters used. **Table 3** presents the estimated worst-case emission rates and predicted maximum ground level 1-hour average concentrations.

The predicted ground level concentrations for all pollutants at the nearest offsite receptors are below the OEH criteria presented in **Table 1**. Therefore, no further investigation is warranted.

Table 2: Stack parameters and paint usage

Parameter	Unit	Data
Stack height	M	5
Stack diameter	M	0.4
Exhaust temperature	°C	20
Exit velocity	m/s	10
Maximum paint usage	litre/hour	4
Maximum fibreglass usage	kg/hour	4

Table 3: Emission rates and predicted maximum concentrations

Pollutant	Emission rate (g/s)	Predicted 1-hour average maximum ground level concentration (mg/m3)	OEH Criteria (mg/m³)
Cyclohexane	3.88E-03	1.15E-03	19
Ethyl acetate	1.52E-02	4.52E-03	12.1
Acetone	9.48E-03	2.81E-03	22
Methyl ethyl ketone	4.03E-03	1.20E-03	3.2
Methyl isobutyl ketone	2.69E-03	7.97E-04	0.05
Xylene	6.10E-02	1.81E-02	0.19
Toluene	2.83E-01	8.39E-02	0.36
Ethylbenzene	4.03E-03	1.20E-03	8
other VOC's	3.64E-01	1.08E-01	
Styrene	3.59E-01	1.06E-01	0.12

5 GREENHOUSE GAS ASSESSMENT

5.1 Introduction

Dynamic interactions between the atmosphere and surface of the earth create the unique climate that enables life on earth. Solar radiation from the sun provides the heat energy necessary for this interaction to take place, with the atmosphere acting to regulate the complex equilibrium. A large part of this climate regulation occurs from the "greenhouse effect" where the absorption and reflection of the solar radiation are dependent on the composition of specific greenhouse gases in the atmosphere.

Over the last century, the composition and concentration of greenhouse gases in the atmosphere has increased due to increased anthropogenic activity. Climatic observations indicate that the average pattern of global weather is changing as a result. The measured increase in global average surface temperatures indicate an unfavourable and unknown outcome if the rate of release of greenhouse gas emissions remain at the current rate.

This assessment aims to estimate the predicted emissions of greenhouse gases (GHG) emitted to the atmosphere due to significant activity associated with the Project and to provide a comparison of the direct emissions from the Project at the state level.

5.2 Greenhouse Gas Inventories

The National Greenhouse Accounts (NGA) Factors document published by the Department of Climate Change and Energy Efficiency (DCCEE) provide calculations suitable to estimate greenhouse gas emissions from various industry sources.

The NGA Factors document defines three scopes (Scope 1, 2 and 3) for different emission categories based on whether the emissions generated are from "direct" or "indirect" sources.

Scope 1 and 2 emissions encompass the direct sources from the Project defined as:

"*...from sources within the boundary of an organisation as a result of that organisation's activities*" (**DCCEE, 2011a**).

Scope 3 emissions occur due to the indirect sources from the Project as:

"...*emissions generated in the wider economy as a consequence of an organisation's activities (particularly from its demand for goods and services), but which are physically produced by the activities of another organisation*" (**DCCEE, 2011a**).

For the purpose of this assessment, emissions generated in all three scopes defined above provide a suitable approximation of the total GHG emissions generated from the Project.

5.2.1 Emission Sources

GHG emission sources identified from the operation of the Project are the use of electricity for the facilities within the Marina Building and from the sale of diesel fuel and gasoline to marine vessels.

The Maritime Building incorporates a variety of facilities including; function centre, kiosks, club facilities, workshop and amenities. The estimated annual electricity usage for the Maritime Building provided by the Proponent is 728,549 kWh.

The approximate annual quantities of diesel and gasoline that would be sold and distributed by the Project are 251,600 L and 327,600 L respectively. Emissions from the use of this diesel and gasoline would not actually be directly attributable to the Project as customers would purchase and use the fuel in a variety of maritime vessels beyond the Project boundary. This assessment has considered the emissions from the use of diesel and gasoline as a direct source.

Table 4 summarises the quantities of materials this assessment is based on.

Table 4: Summary of quantities of materials used for the Project

Type	Quantity	Scope
Electricity	728,549 kWh	2 + 3
Diesel fuel (annual sale)	251,600 L	1 + 3
Gasoline fuel (annual sale)	327,600 L	1 + 3

5.2.2 Emission Factors

To quantify the amount of carbon dioxide equivalent (CO2-e) material generated from the Project, emission factors obtained from the National Greenhouse Accounts (NGA) Factors (**DCCEE, 2011a**) are required and are summarised in **Table 5**.

Table 5: Summary of emission factors

Type	Energy content factor (GJ/kL)	Emission Factor (kg CO_2-e/GJ)			Source
		CO_2	CH_4	N_20	
Electricity	-	0.89	-	-	Table 5 (**DCCEE, 2011a**)
Diesel fuel	38.6	69.2	0.1	0.2	Table 3 (**DCCEE, 2011a**)
Gasoline	34.2	66.7	0.6	2.3	Table 3 (**DCCEE, 2011a**)

5.3 Summary of GHG Emissions

Table 6 presents the estimated annual greenhouse gas emissions generated from the Project.

Table 6: Summary of GHG emissions (CO_2-e tonnes)

Type	Scope 1	Scope 2	Scope 3	Total
Electricity	-	648	124	**772**
Diesel fuel (annual sale)	678	-	51	**729**
Gasoline fuel (annual sale)	780	-	59	**839**
TOTAL	**1,458**	**648**	**234**	**2,340**

In 2010, the estimated greenhouse emissions for Australia were 543 Mt CO2-e (**DCCEE, 2011b**). In comparison, the estimated annual greenhouse emission for the Project is 0.0023 Mt CO2-e (full cycle of

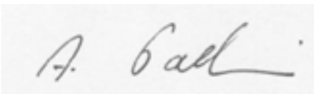
Scopes 1, 2 and 3). Therefore, the annual contribution of greenhouse emissions from the Project in comparison to the Australia greenhouse emissions in 2010 is approximately 0.00043%.

6 Conclusion

Based on the analysis presented in **Section 2** and **Section 4** of this report, it is concluded that emissions (particulates, odour and toxic substances) from the proposed operation will comply with OEH guidelines for amenity and health impact. An operational management plan is recommended to ensure the application of appropriate mitigation measures for each of the activities outlined in **Section 2**.

Please feel free to contact us if you need to discuss (or require clarification on) any aspect of this letter report.

Yours faithfully,
Todoroski Air Sciences



Aleks Todoroski

6 References

DEC (2005)

"Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales", Department of Environment and Climate Change, NSW, Australia.

DCCEE (2011a)

"National Greenhouse Accounts Factors", July 2011. Department of Climate Change and Energy Efficiency.

DCCEE (2011b)

"Australian National Greenhouse Gas Accounts, National Greenhouse Gas Inventory Accounting for the Kyoto Target, December Quarter 2010", April 2011. Department of Climate Change and Energy Efficiency.

DECCW (2007)

"Environmental Action for Marinas, Boatsheds and Slipways", Department of Environment and Climate Change & Water, NSW, Australia.

NPI (1999a)

"Emission Estimation Technique Manual for Shipbuilding Repair and Maintenance", Environment Australia.

NPI (1999b)

"Emission Estimation Technique Manual for Fibreglass Product Manufacturing", Environment Australia.

Appendix A

AUSPLUME OUTPUT FILE

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Concentration or deposition Concentration
Emission rate units grams/second
Concentration units milligrams/m3
Units conversion factor 1.00E+03
Constant background concentration 0.00E+00
Terrain effects None
Smooth stability class changes? No
Other stability class adjustments ("urban modes") None
Ignore building wake effects? No
Decay coefficient (unless overridden by met. file) 0.000
Anemometer height 10 m
Roughness height at the wind vane site 0.300 m

DISPERSION CURVES

Horizontal dispersion curves for sources <100m high Pasquill-Gifford
Vertical dispersion curves for sources <100m high Pasquill-Gifford
Horizontal dispersion curves for sources >100m high Briggs Rural
Vertical dispersion curves for sources >100m high Briggs Rural
Enhance horizontal plume spreads for buoyancy? Yes
Enhance vertical plume spreads for buoyancy? Yes
Adjust horizontal P-G formulae for roughness height? Yes
Adjust vertical P-G formulae for roughness height? Yes
Roughness height 0.400m
Adjustment for wind directional shear None

PLUME RISE OPTIONS

Gradual plume rise? Yes
Stack-tip downwash included? Yes
Building downwash algorithm: PRIME method.
Entrainment coeff. for neutral & stable lapse rates 0.60,0.60
Partial penetration of elevated inversions? No
Disregard temp. gradients in the hourly met. file? No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour

1

SOURCE CHARACTERISTICS

STACK SOURCE: STACK

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
311838	6243698	0m	5m	0.40m	20C	10.0m/s

No building wake effects.
(Constant) emission rate = 1.00E+00 grams/second
No gravitational settling or scavenging.

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1 ______________________

RECEPTOR LOCATIONS

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The Cartesian receptor grid has the following x-values (or eastings):
310000.m 310100.m 310200.m 310300.m 310400.m 310500.m 310600.m
310700.m 310800.m 310900.m 311000.m 311100.m 311200.m 311300.m
311400.m 311500.m 311600.m 311700.m 311800.m 311900.m 312000.m
312100.m 312200.m 312300.m 312400.m 312500.m 312600.m 312700.m
312800.m 312900.m 313000.m 313100.m 313200.m 313300.m 313400.m
313500.m 313600.m 313700.m 313800.m 313900.m

and these y-values (or northings):
6242000.m 6242100.m 6242200.m 6242300.m 6242400.m 6242500.m 6242600.m
6242700.m 6242800.m 6242900.m 6243000.m 6243100.m 6243200.m 6243300.m
6243400.m 6243500.m 6243600.m 6243700.m 6243800.m 6243900.m 6244000.m
6244100.m 6244200.m 6244300.m 6244400.m 6244500.m 6244600.m 6244700.m
6244800.m 6244900.m

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METEOROLOGICAL DATA : Synthetic meteorological data file for AUSPLUME (Urb
a

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1 Peak values for the 100 worst cases (in milligrams/m3)
Averaging time = 1 hour

Rank	Value	Time Recorded hour,date	Coordinates (* denotes polar)
1	3.13E-01	06,04/03/88	(311900, 6243700, 0.0)
2	3.11E-01	05,04/03/88	(311900, 6243700, 0.0)
3	3.05E-01	06,07/03/88	(311900, 6243700, 0.0)
4	3.04E-01	19,11/03/88	(311800, 6243700, 0.0)
5	3.03E-01	05,07/03/88	(311900, 6243700, 0.0)
6	3.03E-01	19,14/03/88	(311800, 6243700, 0.0)
7	3.02E-01	18,11/03/88	(311800, 6243700, 0.0)
8	3.01E-01	18,14/03/88	(311800, 6243700, 0.0)
9	3.00E-01	07,04/03/88	(311900, 6243700, 0.0)
10	2.96E-01	19,17/03/88	(311800, 6243700, 0.0)
11	2.96E-01	19,08/03/88	(311800, 6243700, 0.0)
12	2.94E-01	18,17/03/88	(311800, 6243700, 0.0)
13	2.94E-01	04,04/03/88	(311900, 6243700, 0.0)
14	2.94E-01	18,08/03/88	(311800, 6243700, 0.0)
15	2.93E-01	07,07/03/88	(311900, 6243700, 0.0)
16	2.91E-01	19,03/02/88	(311800, 6243700, 0.0)
17	2.91E-01	18,03/02/88	(311800, 6243700, 0.0)
18	2.91E-01	20,11/03/88	(311800, 6243700, 0.0)
19	2.90E-01	20,14/03/88	(311800, 6243700, 0.0)
20	2.89E-01	19,28/01/88	(311800, 6243700, 0.0)
21	2.88E-01	18,28/01/88	(311800, 6243700, 0.0)
22	2.88E-01	04,07/03/88	(311900, 6243700, 0.0)
23	2.87E-01	08,24/06/88	(311800, 6243800, 0.0)
24	2.87E-01	20,03/02/88	(311800, 6243700, 0.0)
25	2.87E-01	19,20/03/88	(311800, 6243700, 0.0)
26	2.86E-01	06,10/03/88	(311900, 6243700, 0.0)
27	2.86E-01	17,11/03/88	(311800, 6243700, 0.0)
28	2.86E-01	04,16/04/88	(311800, 6243600, 0.0)
29	2.86E-01	17,14/03/88	(311800, 6243700, 0.0)
30	2.85E-01	06,01/03/88	(311900, 6243700, 0.0)
31	2.85E-01	08,17/04/88	(311800, 6243800, 0.0)
32	2.85E-01	17,03/02/88	(311800, 6243700, 0.0)
33	2.85E-01	18,20/03/88	(311800, 6243700, 0.0)
34	2.85E-01	04,23/06/88	(311800, 6243600, 0.0)
35	2.85E-01	05,10/03/88	(311900, 6243700, 0.0)
36	2.84E-01	20,17/03/88	(311800, 6243700, 0.0)
37	2.83E-01	05,01/03/88	(311900, 6243700, 0.0)
38	2.83E-01	20,28/01/88	(311800, 6243700, 0.0)
39	2.83E-01	18,21/06/88	(311900, 6243800, 0.0)
40	2.82E-01	20,08/03/88	(311800, 6243700, 0.0)

41	2.82E-01	18,24/06/88	(311900, 6243800,	0.0)
42	2.82E-01	04,26/06/88	(311800, 6243600,	0.0)
43	2.82E-01	08,27/06/88	(311800, 6243800,	0.0)
44	2.82E-01	17,28/01/88	(311800, 6243700,	0.0)
45	2.81E-01	04,19/04/88	(311800, 6243600,	0.0)
46	2.81E-01	08,21/06/88	(311800, 6243800,	0.0)
47	2.80E-01	17,17/03/88	(311800, 6243700,	0.0)
48	2.79E-01	19,06/02/88	(311800, 6243700,	0.0)
49	2.79E-01	06,02/05/88	(311900, 6243700,	0.0)
50	2.79E-01	18,25/06/88	(311900, 6243600,	0.0)
51	2.79E-01	18,20/06/88	(311700, 6243700,	0.0)
52	2.79E-01	18,06/02/88	(311800, 6243700,	0.0)
53	2.78E-01	06,27/04/88	(311900, 6243700,	0.0)
54	2.78E-01	18,22/06/88	(311900, 6243600,	0.0)
55	2.78E-01	17,08/03/88	(311800, 6243700,	0.0)
56	2.77E-01	21,03/02/88	(311800, 6243700,	0.0)
57	2.77E-01	08,20/04/88	(311800, 6243800,	0.0)
58	2.77E-01	05,16/04/88	(311800, 6243600,	0.0)
59	2.77E-01	18,18/04/88	(311900, 6243600,	0.0)
60	2.77E-01	17,25/06/88	(311900, 6243600,	0.0)
61	2.76E-01	18,17/04/88	(311900, 6243800,	0.0)
62	2.76E-01	04,20/06/88	(311800, 6243600,	0.0)
63	2.76E-01	17,22/06/88	(311900, 6243600,	0.0)
64	2.76E-01	17,18/04/88	(311900, 6243600,	0.0)
65	2.76E-01	07,10/03/88	(311900, 6243700,	0.0)
66	2.75E-01	20,06/02/88	(311800, 6243700,	0.0)
67	2.75E-01	18,17/06/88	(311700, 6243700,	0.0)
68	2.75E-01	20,20/03/88	(311800, 6243700,	0.0)
69	2.75E-01	05,02/05/88	(311900, 6243700,	0.0)
70	2.75E-01	16,03/02/88	(311800, 6243700,	0.0)
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74	2.73E-01	08,04/03/88	(311900, 6243700,	0.0)
75	2.73E-01	04,01/07/88	(311800, 6243600,	0.0)
76	2.73E-01	05,19/04/88	(311800, 6243600,	0.0)
77	2.72E-01	07,01/03/88	(311900, 6243700,	0.0)
78	2.72E-01	21,28/01/88	(311800, 6243700,	0.0)
79	2.72E-01	18,27/06/88	(311900, 6243800,	0.0)
80	2.71E-01	07,17/04/88	(311800, 6243800,	0.0)
81	2.71E-01	08,02/07/88	(311800, 6243800,	0.0)
82	2.71E-01	17,20/03/88	(311800, 6243700,	0.0)
83	2.71E-01	04,10/03/88	(311900, 6243700,	0.0)
84	2.70E-01	05,05/05/88	(311900, 6243700,	0.0)
85	2.70E-01	18,28/06/88	(311900, 6243600,	0.0)
86	2.69E-01	19,05/03/88	(311800, 6243700,	0.0)
87	2.69E-01	06,19/06/88	(312000, 6243700,	0.0)
88	2.69E-01	16,28/01/88	(311800, 6243700,	0.0)
89	2.69E-01	05,23/06/88	(311800, 6243600,	0.0)
90	2.68E-01	08,07/03/88	(311900, 6243700,	0.0)
91	2.68E-01	17,28/06/88	(311900, 6243600,	0.0)
92	2.68E-01	19,21/06/88	(311900, 6243800,	0.0)
93	2.68E-01	19,17/04/88	(311900, 6243800,	0.0)
94	2.68E-01	18,23/06/88	(311700, 6243700,	0.0)
95	2.68E-01	18,05/03/88	(311800, 6243700,	0.0)
96	2.67E-01	06,24/04/88	(311900, 6243700,	0.0)
97	2.67E-01	21,06/02/88	(311800, 6243700,	0.0)
98	2.67E-01	19,24/06/88	(311900, 6243800,	0.0)
99	2.67E-01	06,08/05/88	(311900, 6243700,	0.0)
100	2.67E-01	18,14/04/88	(311900, 6243800,	0.0)