

ENVIRONMENTAL IMAGING (EI)  
TO INVESTIGATE SUBSURFACE CONDITIONS  
AT THREE SUMP LOCATIONS  
NORTH AND NORTHWEST OF  
INUVIK, NORTHWEST TERRITORIES

**prepared for**

Petro-Canada  
Calgary, Alberta

**Essis**

**produced by**

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Respectfully submitted,  
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## 1. INTRODUCTION

This report describes an environmental imaging (EI) investigation carried out under contract to Petro-Canada of Calgary, Alberta. Surveying was conducted on September 3<sup>rd</sup> and 4<sup>th</sup> at three sump locations north and northwest of Inuvik, Northwest Territories (Figure 1).

The survey objectives were to identify and delineate possible subsurface ionic occurrences at all sites. The Geonics EM38 and EM31 were used to meet these objectives. Two Trimble Pathfinder Power DGPS receivers provided positional control. Data were differentially corrected using Central Alaska, Alaska, USA base station data.

All project work was carried out in accordance to discussions with Mr. Wray Adams of Petro-Canada of Calgary, Alberta.

**FIGURE 1**  
Survey Locations





## 2. ENVIRONMENTAL IMAGING (EI) - DATA ACQUISITION

EI refers to the imaging of the subsurface for anomalous environmental conditions. Various tools are applicable to this process, each of unique capability and purpose. This section describes the tools used to image environmental subsurface conditions on all sites.

Appendix A contains geophysical (Geonics EM38 and EM31) and DGPS positioning (Trimble Pathfinder Power) specifications. Appendix B contains a technical paper by the instrument manufacturer (Geonics Limited). This paper provides in-depth technical background on the applied geophysical technique (Frequency-Domain EM induction).

### 2.1 LATERAL CONDUCTIVITY (GEONICS EM38/31)

Appendix A contains Geonics EM38/31 instrument specifications. The Geonics EM38/31 use electromagnetic (EM) inductive forces to delineate subsurface conductivities. These instruments are digitally synchronized to differentially-corrected GPS (DGPS). This arrangement allows positioning and geophysical data to be stored simultaneously on handheld dataloggers. Data are acquired swiftly at high sampling density. EM38 readings were taken in the 'EM38 – Horizontal Coils at Ground Level' mode, approximating measurements of the initial 1.5 m of topsoil (Table 1). EM31 readings were taken in the 'EM31 – Horizontal Coils at Hip Level' mode, approximating measurements of the initial 5 m of topsoil (Table 1).

Please note that an inherent property of EM signals prevents deep penetration into conductive media. Tabulated depths of penetration (Table 1) are skindepths of the penetrating EM signal and are a function, in part, of overall soil conductivity (conductive soil reduces depth-of-penetration). The various coil orientations are not used to delineate the depth-extent of contamination but rather the depth-onset of contamination.



**TABLE 1**  
EM38/31 Coil Orientations and Corresponding Effective Depths of Penetration

<u>Coil Orientation</u>	<u>Effective Depth of Penetration</u>
<b>EM38 – Horizontal Coils at Ground Level</b>	<b>1.5 m</b>
EM38 – Vertical Coils at Ground Level	1 m
EM31 – Vertical Coils at Ground Level	2 m
<b>EM31 – Horizontal Coils at Hip Level</b>	<b>5 m</b>
EM31 – Horizontal Coils at Ground Level	6 m

## 2.2 DGPS POSITIONING (TRIMBLE PATHFINDER POWER)

Appendix A contains DGPS instrument specifications. Positioning data were differentially corrected using Central Alaska, Alaska, USA base station data. The moving DGPS receiver (Rover) was synchronized to geophysical instruments providing positioning control of geophysical measurements. Although this system can readily apply corrections in real-time, post-processing using specialized software is more accurate and avoids potential interference by real-time correcting radio signals. Positioning accuracies in the several decimeters range are generally possible. Table 2 lists various DGPS survey parameters. Site features have been surveyed on site and serve as reference markings for follow-up work.

**TABLE 2**  
DGPS Survey Parameters

Base Station UTM Coordinates:	
Central Alaska, Alaska, USA	7265957.73N, 607453.44E, 283.51 m
Rover UTM Zone	Zone 8
Final UTM Datum:	NAD83



### 3. ENVIRONMENTAL IMAGING (EI) - DATA PROCESSING AND PRESENTATION

EI data processing was initiated infield and completed at headquarters. Data processing was designed to enhance results by carefully applying specific mathematical algorithms. Such algorithms may filter unwanted data, enhance trend continuity or highlight otherwise unclear or invisible data.

#### 3.1 LATERAL CONDUCTIVITY (GEONICS EM38/31)

Lateral conductivity data were gathered on all three sites. EM38/31 data were processed to moderate responses from buried metals or powerline interference. Additional data processing enhanced trend continuity and amplified hidden anomalies. To accommodate variable site dimensions, the maps are presented at different scales. Colour scales were assigned to enhance site-specific dynamic ranges. Key data processing parameters are tabulated (Table 3) to enable future data processing repeatability.

Two large-format 'Lateral Conductivity (EM38/31) and Site Features' maps were created for each site. All maps are included in the clear plastic pouches accompanying this report. Reduced versions are bound into the report. The large-format maps detail site features better and offer finer EM-imaging than their small-format counterparts.

Lateral conductivity images were overlain onto aerial photographs (taken by Essis crew during mobilization flights) to improve feature identification during follow-up work. As the aerial photographs exhibit focal distortion, the DGPS surveyed features on the maps should be used for referencing field locations. Aerial photographs are bound in following the report.



**TABLE 3**  
EM38/31 - Key Data Processing Parameters

Data Gridding:	Min. Curvature (1x1) Int. Tension (1), Bound. Tension (1) Residual (varying), Iteration ( $\leq 10000$ )
Data Filtering:	Mov. Ave. (5, 5)
Data Imaging:	Non-linear
▪ Nuna I-30	8 - 50 mS/m
▪ Kurk M-15	45 - 100 mS/m
▪ Kugpik L-46	42 - 120 mS/m
Image Enhancement:	Res. enhancement (140 dpi), Low Pass (3)

### 3.2 DGPS POSITIONING (TRIMBLE PATHFINDER POWER)

Positioning data were corrected for ionospheric effects. Specialized processing software by Trimble Navigation incorporated Central Alaska, Alaska, USA base station data to differentially correct all rover positions. PDOP (Positional Dilution of Precision) was generally below 3.5. PDOP is a statistical measure of positional accuracy related to satellite geometry relative to the receiver. In general, PDOP values in excess of five suggest somewhat more inaccurate positioning. Final UTM coordinates were projected in NAD83.

## 4. MAP INTERPRETATION AND SITE ANALYSES

Lateral conductivity data were gathered on all investigated sites. The resulting maps are titled 'Lateral Conductivity Distribution (EM38/31) and Site Features'. The EM31 lateral conductivity maps represent data from greater depth than EM38 lateral conductivity maps (Table 1). EM-images were overlain onto aerial photographs to improve in-field feature identification during follow-up work.



Lateral conductivity is also referred to as apparent conductivity. Apparent conductivity approximates the bulk conductivity from surface to skindepth of the primary EM field. Conductivity variations are generally caused by a combination of ionic contaminants (chlorides), natural soil salinity, buried metal (pipes, scrap, etc.), changes in soil type and saturation.

Metallic and ionic responses can often be distinguished by interpreting their characteristic behaviour. Such behaviour is a function of geometric coupling between the instrument and buried metal. Buried metal is easily identified when geometric coupling is maximized (for example, when surveying perpendicularly across pipelines). Consequently, buried metal is not always identified when coupling is minimized (for example, when surveying parallel to pipelines). Please note that while the EM38/31 respond to buried metal, these tools are not specifically designed to map buried metals.

The colour images on the maps represent the lateral conductivity distribution on the respective site. The possibility of ionic contamination increases from dark blue (cold colours) to dark red (hot colours). Regions that have been surveyed (as revealed by the presence of geophysical measurement stations, fine crosses) and are not coloured (but appear white) are also presumed background. Background readings can vary between sites with changes in soil type. Dry accumulations of sand or gravel typically yield low backgrounds. Naturally occurring ions, fertilized, fine-grained and/or saturated soils yield elevated backgrounds. Elevated backgrounds can sometimes match magnitudes typical of contaminated regions. Lab results of test hole locations from within anomalous regions (hot colours) should reveal the cause of anomalous responses. Similarly, lab results of test hole locations from outside anomalous regions (cold colours) should reveal the nature of background responses.

#### 4.1 NUNA I-30

Maps (1/6) and (2/6) represent the lateral conductivity (EM38/31) distribution at Nuna I-30. The large-format maps are scaled at 1:700. The small-format maps are scaled at 1:975. Data are presented in UTM coordinates and projected in NAD83. The UTM grid coordinate system displays in units of metres (as opposed to degrees) and allows distance measurements to be read directly off





the map. UTM X and Y grid lines (the fine vertical and horizontal lines on all maps) are spaced 10 m apart. Site features have been DGPS surveyed and are included on the maps to provide reference control during follow-up work.

In general, Maps (1/6) and (2/6) reveal shallower and deeper conductivity data on site, respectively. Conductivity response magnitudes range from 8 to 50 mS/m. Such low background conductivities are typical of clean sands and silts commonly found in this region. Aerial Photograph #1 (refer to the Aerial Photographs section) presents an overlay of the EM38 image to an aerial photograph of the site (taken by Essis crew on September 3<sup>rd</sup>, 2003 during a mobilization flight).

Anomalous conductivities appear in the main sump and the kitchen sump in the southeast of both maps. Elevated responses are likely caused by ionic (chloride) contamination. Potential contamination appears primarily contained within the two sumps. Comparison of EM38 and EM31 response magnitudes suggest potential contamination is shallower in the kitchen sump and deeper in the main sump.

The EM38 survey (Map 1/2) extends further northwest than the EM31 survey to encompass the area around the wellhead. Anomalous responses surrounding the wellhead are suggestive of ionic (chloride) contamination. Potential contamination may have dispersed from the wellhead towards to the southwest.

#### 4.2 KURK M-15

Maps (3/6) and (4/6) represent the lateral conductivity (EM38/31) distribution at Kurk M-15. The large-format maps are scaled at 1:400. The small-format maps are scaled at 1:575. Data are presented in UTM coordinates and projected in NAD83. The UTM grid coordinate system displays in units of metres (as opposed to degrees) and allows distance measurements to be read directly off the map. UTM X and Y grid lines (the fine vertical and horizontal lines on all maps) are spaced 10 m apart. Site features have been DGPS surveyed and are included on the maps to provide reference control during follow-up work.



In general, Maps (3/6) and (4/6) reveal shallower and deeper conductivity data on site, respectively. Aerial Photograph #2 (refer to the Aerial Photographs section) presents an overlay of the EM38 image to an aerial photograph of the site (taken by Essis crew on September 4<sup>th</sup>, 2003 during a mobilization flight). A previous EM38/31 survey was conducted on October 30<sup>th</sup>, 2002 (Essis Project #1261, Vol. 2, Location D1).

The current fall-2003 survey reveals elevated responses north, west and south of the investigated sump. Maximum conductivity response magnitudes (100 mS/m) appear on shallower-imaging EM38 (Map 3/6) and suggest ionic contamination. Aerial Photograph #2 displays wet conditions surrounding the sump that may have facilitated contaminant dispersal. The EM31 map suggests potential northward migration of subtle ionic contamination extending up to approximately 30 m north of the pond. Closure was achieved in all directions with the EM31. Comparing response magnitudes of the EM38 and the EM31 suggests suspected contamination is shallower.

Comparison of this current fall-2003 survey to the previous winter-2002 survey reveals similar conductivity trends. Peak EM38 response magnitudes of 100 mS/m on both surveys may suggest similar concentrations of contamination. However, it is difficult to make a direct comparison between surveys conducted during different seasons. Frozen ground (i.e. ice) in the winter will reduce conductivity responses while increased available moisture content (i.e. water) during the warmer seasons will increase conductivity responses. Lab results from future soil core should be used to verify the true nature of anomalous conductivities.

#### 4.3 KUGPIK L-46

Maps (5/6) and (6/6) represent the lateral conductivity (EM38/31) distribution at Kugpik L-46. The large-format maps are scaled at 1:500. The small-format maps are scaled at 1:670. Data are presented in UTM coordinates and projected in NAD83. The UTM grid coordinate system displays in units of metres (as opposed to degrees) and allows distance measurements to be read directly off the maps. UTM X and Y grid lines (the fine vertical and horizontal lines on all maps) are spaced 10 m apart. Site features have been DGPS surveyed and are included on the maps to provide reference control during follow-up work.



In general, Maps (5/6) and (6/6) reveal shallower and deeper conductivity data on site, respectively. Aerial Photograph #3 (refer to the Aerial Photographs section) presents an overlay of the EM38 image to an aerial photograph of the site (taken by Essis crew on September 4<sup>th</sup>, 2003 during a mobilization flight). A previous EM38/31 survey was conducted on October 31<sup>st</sup>, 2002 (Essis Project #1261, Vol. 2, Location D2).

The current fall-2003 survey reveals elevated conductivities in the sump. Conductivity distributions and magnitudes on both maps are similar and suggest ionic contamination. Potential contamination appears contained to the northwest by the berm. EM trends on both maps suggest contaminant dispersal to the north and southeast. The EM38 map also suggests subtle contaminant migration southwest along the berm. Aerial Photograph #3 displays very wet conditions surrounding the sump that may have facilitated contaminant spreading.

Comparison of this current fall-2003 survey to the previous winter-2002 survey reveals similar response trends. Conductivity response magnitudes in the previous winter-2002 appear reduced. This does not necessarily denote that contaminant concentrations have increased over time. Frozen ground encountered in the winter likely reduced conductivity responses. Due to this effect, it is difficult to make direct comparisons between surveys conducted during different seasons. Lab results from future soil core should be used to verify the true nature of anomalous conductivities.



## 5. CONCLUSIONS AND RECOMMENDATIONS

The survey objectives were to identify and delineate possible subsurface ionic occurrences at Nuna I-30, Kurk M-15 and Kugpik L-46. The Geonics EM38 and EM31 were used to map the lateral extents of ion-contaminated regions using electromagnetic (EM) inductive forces. Two Trimble Pathfinder Power DGPS receivers provided positional control. Data were differentially corrected using Central Alaska, Alaska, USA base station data. In general, lateral conductivity mapping revealed anomalous responses suggestive of ionic contamination at all three investigated sumps.

Potential contamination appeared contained within the main sump and the kitchen sump at Nuna I-30. Elevated responses northwest of the sump may have been caused by ionic contamination from the wellhead.

Suspected ionic contamination at Kurk M-15 appeared concentrated along the north, west, and south sides of the sump. Contamination may have dispersed to the north.

Potential contamination appeared concentrated inside of the Kugpik L-46 sump. Subtle contaminant migration may have occurred to the north, southeast, and southwest.

Previous lateral conductivity surveys were conducted at the Kurk M-15 and Kugpik L-46 sites in October 2002. Frozen ground encountered in the previous winter survey likely reduced conductivity responses. As frozen ground was not encountered during the current fall surveys, it is difficult to directly compare winter and fall results.

Geophysical data should be correlated to future lab results of strategically gathered soil and ground water samples at all sites. The combined interpretation of all data ensures a comprehensive understanding of site conditions.

Site features have been DGPS surveyed to assist follow-up work. As well, aerial photographs taken of the sites should be used to support in-field feature identification. Caution is advised during subsequent sampling to avoid unidentified buried objects.



04/17/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/17/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/18/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/18/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/19/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/19/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/20/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/20/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/21/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/21/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/22/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/22/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/23/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/23/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/24/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/24/03	12:00:00	3.9691	4.2484	3.5753	4.5473	3.5554	3.4556	138.2227
04/25/03	0:00:00	-4.4858	-4.5331	-4.6915	-4.6333	-4.4858	-4.549	-4.4647
04/25/03	12:00:00	1.9714	2.5567	2.5367	2.2817	2.2417	2.2217	2.0915
04/26/03	0:00:00	-0.4919	-0.6087	-0.6899	-0.5478	-0.5275	-0.5478	-0.4919
04/26/03	12:00:00	5.9431	6.2075	5.9829	2.9814	4.1337	6.0679	5.8682
04/27/03	0:00:00	-2.3001	-2.1357	-2.3669	-2.3568	-2.2796	-2.3362	-2.2179
04/27/03	12:00:00	5.6039	5.5692	5.7885	2.0114	3.6103	5.7885	5.4493
04/28/03	0:00:00	-0.7052	-0.8527	-0.9341	-0.8118	-0.7711	-0.7711	-0.7255
04/28/03	12:00:00	7.9476	8.2688	7.9275	3.6351	5.6039	7.7873	7.6468
04/29/03	0:00:00	-1.9146	-1.9711	-2.1562	-2.0121	-1.9301	-2.038	-1.9711
04/29/03	12:00:00	1.0328	1.8108	1.5401	0.897	1.1936	1.5302	1.5101
04/30/03	0:00:00	-1.6024	-1.6792	-1.7302	-1.6229	-1.6229	-1.6638	-1.6229
04/30/03	12:00:00	0.2268	0.7361	0.5294	0.1106	0.3277	0.5495	0.5749
1/5/2003	0:00:00	-4.165	-4.165	-4.2751	-4.1809	-4.1809	-4.1809	-4.1492
1/5/2003	12:00:00	-1.9301	-1.2092	-1.3366	-1.8122	-1.7047	-1.2754	-1.0308
2/5/2003	0:00:00	-6.5137	-6.5137	-6.622	-6.557	-6.5137	-6.557	-6.5137
2/5/2003	12:00:00	-1.6024	-0.0106	-0.5884	-2.3669	-2.1919	-0.2385	0.0851
3/5/2003	0:00:00	-6.3624	-6.4003	-6.4326	-6.3787	-6.3624	-6.3624	-6.3409
3/5/2003	12:00:00	-4.6544	-3.3139	-3.6941	-4.6122	-4.4647	-3.7359	-3.4178
4/5/2003	0:00:00	-8.0254	-8.0421	-8.1308	-8.0865	-8.0421	-8.0421	-8.0032
4/5/2003	12:00:00	0.1662	0.9574	0.8067	-3.023	-1.6792	1.4901	1.2087
5/5/2003	0:00:00	-10.8924	-11.0975	-11.1915	-11.0444	-11.0033	-11.0444	-10.9565
5/5/2003	12:00:00	2.0915	3.0164	2.1764	-1.3724	0.146	2.7715	2.5967
6/5/2003	0:00:00	-4.9664	-4.8553	-5.1204	-5.0991	-5.0087	-5.0299	-4.924
6/5/2003	12:00:00	-1.9916	-0.6899	-1.1377	-2.3875	-1.956	-1.1581	-0.7255
7/5/2003	0:00:00	-9.3885	-9.3714	-9.4794	-9.4056	-9.3885	-9.4056	-9.3487
7/5/2003	12:00:00	-3.6941	-3.0699	-3.1529	-6.4109	-5.2266	-2.6867	-1.9301
8/5/2003	0:00:00	-8.0421	-8.0697	-8.1476	-8.0697	-8.0421	-8.0697	-8.0254
8/5/2003	12:00:00	0.7915	1.6354	0.7714	-2.5679	-1.1377	1.3545	1.3947
9/5/2003	0:00:00	-2.5061	-2.6092	-2.6867	-2.5679	-2.5679	-2.5679	-2.5216
9/5/2003	12:00:00	10.1704	12.0443	10.1501	5.2501	7.5818	11.6338	11.1934
10/5/2003	0:00:00	-6.3409	-6.3787	-6.5354	-6.4326	-6.4003	-6.4326	-5.9802
10/5/2003	12:00:00	-3.2359	-2.7747	-2.8469	-3.2515	-3.023	-3.0907	-3.023
11/5/2003	0:00:00	-3.9974	-4.0183	-4.0863	-3.9974	-3.9974	-4.0286	-3.9974
11/5/2003	12:00:00	-1.1784	-0.0663	-0.2285	-2.1357	-1.4236	-0.0663	0.1662
12/5/2003	0:00:00	-6.7091	-6.6441	-6.7743	-6.7579	-6.7091	-6.7251	-6.6441
12/5/2003	12:00:00	-2.6092	-1.4386	-1.7712	-2.5321	-2.4237	-1.7507	-1.4999

05/13/03	0:00:00	-5.7173	-5.6266	-5.744	-5.744	-5.7173	-5.7173	-5.6479
05/13/03	12:00:00	-2.3001	-0.9748	-1.4795	-2.5061	-2.0946	-1.3366	-0.8934
05/14/03	0:00:00	-5.7173	-5.6479	-5.7868	-5.744	-5.7173	-5.7173	-5.6479
05/14/03	12:00:00	-5.6693	-4.6703	-5.1416	-5.8511	-5.5355	-5.0991	-4.76
05/15/03	0:00:00	-7.5614	-7.4735	-7.6495	-7.6166	-7.5614	-7.5834	-7.4955
05/15/03	12:00:00	-5.6851	-4.1073	-4.8234	-6.0175	-5.4342	-4.8553	-4.4068
05/16/03	0:00:00	-8.7392	-8.6496	-8.846	-8.8685	-8.7617	-8.7617	-8.672
05/16/03	12:00:00	-1.7047	-0.2133	-1.0512	-3.7513	-2.6298	-0.4919	-0.0968
05/17/03	0:00:00	-5.0087	-5.0991	-5.2053	-4.5912	-4.8394	-5.3277	-5.3277
05/17/03	12:00:00	4.9911	4.9509	4.4127	1.1534	2.5367	5.1704	4.8712
05/18/03	0:00:00	-2.8161	-3.023	-3.0699	-2.7747	-2.6867	-3.1321	-3.0699
05/18/03	12:00:00	7.9877	7.9676	7.4266	5.1903	6.1725	7.8825	7.8224
05/19/03	0:00:00	3.4305	3.211	3.211	3.6351	3.4955	3.3307	3.2359
05/19/03	12:00:00	7.0414	8.2488	7.1614	3.4955	4.6273	7.9173	8.5902
05/20/03	0:00:00	-0.8831	-1.0766	-1.0512	-0.8527	-0.8831	-0.9901	-0.8934
05/20/03	12:00:00	8.2488	8.3639	8.3843	6.6217	7.0814	8.1833	7.742
05/21/03	0:00:00	0.4487	0.4084	0.3681	0.4689	0.4186	0.4487	0.4186
05/21/03	12:00:00	3.6551	4.1138	3.8894	2.6615	3.176	4.0939	4.2732
05/22/03	0:00:00	-1.0969	-1.1377	-1.2092	-1.0969	-1.0969	-1.1173	-1.0969
05/22/03	12:00:00	1.3796	2.3768	1.9563	1.239	1.4901	1.9162	2.1764
05/23/03	0:00:00	-1.7302	-1.7047	-1.8122	-1.7507	-1.7302	-1.7302	-1.7047
05/23/03	12:00:00	-0.8321	0.2066	-0.274	-0.9341	-0.7255	-0.274	-0.0312
05/24/03	0:00:00	-4.9875	-4.924	-5.0407	-5.0299	-4.9875	-5.0087	-4.924
05/24/03	12:00:00	-1.0612	-0.6899	-0.8118	-1.2192	-0.9491	-0.9901	-0.8527
05/25/03	0:00:00	-4.5069	-4.4489	-4.5331	-4.5227	-4.5069	-4.4858	-4.4227
05/25/03	12:00:00	0.4186	1.5401	1.0783	-0.1171	0.2417	1.2943	1.6755
05/26/03	0:00:00	-3.5636	-3.4178	-3.6052	-3.6469	-3.5636	-3.5427	-3.4803
05/26/03	12:00:00	1.6554	2.3168	2.0915	1.7008	1.8611	1.8962	1.8611
05/27/03	0:00:00	1.1132	0.8067	0.867	1.3144	1.2742	0.7714	0.7915
05/27/03	12:00:00	11.6338	11.7363	11.311	9.8562	10.4548	11.5159	11.4696
05/28/03	0:00:00	7.9275	7.5467	7.7722	8.1833	7.9275	7.8625	7.8224
05/28/03	12:00:00	16.2694	16.7016	16.4203	15.5083	15.6791	16.5013	16.4203
05/29/03	0:00:00	0.4689	0.4487	0.3882	0.489	0.4689	0.4487	0.489
05/29/03	12:00:00	6.8115	7.1964	7.2364	6.6367	6.7618	7.1414	7.2866
05/30/03	0:00:00	0.4186	0.4335	0.3529	0.4186	0.4084	0.4186	0.4487
05/30/03	12:00:00	3.8345	4.1687	4.0838	3.8495	4.0491	4.0939	4.1537
05/31/03	0:00:00	-1.2092	-1.4386	-1.4236	-1.1377	-1.1581	-1.4236	-1.4236
05/31/03	12:00:00	10.2312	10.0893	9.9322	6.7467	8.1231	10.0388	10.0893
1/6/2003	0:00:00	3.0763	2.7915	2.8416	3.1561	3.2359	2.7565	2.7715
1/6/2003	12:00:00	18.3066	18.3451	17.9527	14.5854	16.0544	18.168	18.1292
2/6/2003	0:00:00	8.7662	8.5602	8.5049	8.5902	8.6706	8.6455	8.6103
2/6/2003	12:00:00	12.855	13.2862	12.333	9.124	10.4295	12.7878	13.6353
3/6/2003	0:00:00	0.0649	-0.0514	-0.0766	0.1106	0.0649	0.0043	0.0298
3/6/2003	12:00:00	8.4795	9.5732	9.0431	7.6468	8.0429	9.1491	9.3507
4/6/2003	0:00:00	8.2034	8.0028	8.1432	8.8266	8.3238	8.2034	8.0028
4/6/2003	12:00:00	13.8917	14.4852	13.2497	9.4722	10.7956	13.7607	14.6909
5/6/2003	0:00:00	4.2484	4.0491	4.0289	4.348	4.3281	4.0691	4.0939
5/6/2003	12:00:00	12.5447	13.3486	12.6894	11.0097	11.8234	12.8187	13.1458
6/6/2003	0:00:00	0.8317	0.8871	0.7361	0.7915	0.8067	0.8317	0.8871
6/6/2003	12:00:00	3.69	4.4326	4.3281	3.5554	3.7498	4.2085	4.4127
7/6/2003	0:00:00	0.8317	0.8871	0.7361	0.7258	0.7714	0.8067	0.867
7/6/2003	12:00:00	15.3271	15.2048	14.6276	11.6543	13.1196	15.067	14.7913

8/6/2003	0:00:00	6.8266	6.6668	6.6367	7.2213	6.9664	6.462	6.462
8/6/2003	12:00:00	12.6687	13.6353	12.2505	8.1432	9.6338	12.9328	13.9177
9/6/2003	0:00:00	5.1305	5.0757	5.0558	5.1106	5.1505	5.0907	5.1305
9/6/2003	12:00:00	16.1619	16.0544	15.5244	11.8234	13.5361	15.7327	15.6472
10/6/2003	0:00:00	0.489	0.5749	0.4487	0.4487	0.489	0.5294	0.5647
10/6/2003	12:00:00	6.3321	7.1414	6.6868	5.4493	5.8832	6.8017	7.0215
11/6/2003	0:00:00	-0.2385	-0.2385	-0.3348	-0.2385	-0.2537	-0.2537	-0.2285
11/6/2003	12:00:00	6.0679	6.6367	6.033	3.7498	4.5724	6.3024	6.7215
12/6/2003	0:00:00	-1.9916	-2.2796	-2.2384	-1.9916	-1.8736	-2.3362	-2.3001
12/6/2003	12:00:00	9.831	10.2515	8.7662	4.348	6.0078	9.366	10.1857
06/13/03	0:00:00	0.252	0.1106	0.1864	0.4084	0.489	-0.0663	-0.0312
06/13/03	12:00:00	7.8224	8.5701	7.6018	4.2732	5.5343	7.9676	8.7362
06/14/03	0:00:00	4.5874	3.8145	4.0491	4.8712	4.9708	3.6551	3.5354
06/14/03	12:00:00	17.7708	17.5787	16.68	12.4828	14.5062	16.8533	16.8804
06/15/03	0:00:00	4.8115	4.6671	4.6818	4.931	4.8712	4.7318	4.7318
06/15/03	12:00:00	7.6668	8.0629	7.9476	7.4666	7.8424	7.762	7.9026
06/16/03	0:00:00	2.4767	2.3168	2.2817	2.2968	2.2817	2.3617	2.3617
06/16/03	12:00:00	6.3223	7.1263	6.8616	5.5343	5.9032	6.9216	7.3115
06/17/03	0:00:00	0.2417	0.0851	0.0649	0.2721	0.252	0.146	0.1864
06/17/03	12:00:00	10.2924	10.9178	9.8562	6.6868	8.0278	10.3583	11.1017
06/18/03	0:00:00	0.252	0.2417	0.0954	0.1258	0.2066	0.2268	0.3125
06/18/03	12:00:00	6.3223	7.1165	6.8115	4.931	5.5241	7.1165	7.2213
06/19/03	0:00:00	6.3024	5.5692	5.6937	6.4021	6.6668	5.3249	5.2501
06/19/03	12:00:00	10.6988	11.6133	9.988	5.963	7.5618	10.4905	11.5159
06/20/03	0:00:00	1.3144	1.3947	1.2742	1.2943	1.3345	1.3345	1.3947
06/20/03	12:00:00	12.3897	13.3172	12.2917	8.6455	9.8562	12.8187	13.4319
06/21/03	0:00:00	4.5623	4.2732	4.2582	4.6073	4.4676	4.3679	4.2883
06/21/03	12:00:00	21.6944	22.1891	20.5972	17.0435	18.768	20.8624	20.7066
06/22/03	0:00:00	4.7765	4.6273	4.6273	5.1305	4.9509	4.722	4.6073
06/22/03	12:00:00	16.3772	17.3108	16.2102	13.2081	14.6435	16.5339	17.0054
06/23/03	0:00:00	6.5817	6.427	6.2425	7.0814	6.9566	6.3472	6.1725
06/23/03	12:00:00	9.9322	11.0251	9.831	6.0078	7.4266	10.3939	11.5159
06/24/03	0:00:00	5.5091	5.0309	5.1505	5.5892	5.629	4.7318	4.722
06/24/03	12:00:00	15.0242	15.1571	14.3061	10.7802	12.4723	14.4852	14.5643
06/25/03	0:00:00	9.6692	9.2145	9.3507	9.8108	9.988	9.0282	9.0081
06/25/03	12:00:00	21.6475	21.7705	21.1576	18.168	19.5088	21.3787	21.3436
06/26/03	0:00:00	16.0974	15.6472	15.7969	16.3987	16.5771	15.4123	15.3753
06/26/03	12:00:00	24.2704	24.2704	23.5309	20.1618	21.8352	23.5977	23.7437
06/27/03	0:00:00	12.1887	11.5723	11.6543	12.1887	12.3536	11.2905	11.2905
06/27/03	12:00:00	19.8261	19.9568	19.1428	15.9683	17.4638	19.3961	19.3961
06/28/03	0:00:00	11.885	11.311	11.4082	11.9264	12.2505	11.0405	11.0609
06/28/03	12:00:00	21.0706	21.1169	20.4422	17.2671	18.768	20.7353	20.6893
06/29/03	0:00:00	13.9754	13.6822	13.7031	14.1483	14.1693	13.5987	13.5987
06/29/03	12:00:00	25.6128	25.7333	24.8403	21.4602	23.0776	25.0276	25.0588
06/30/03	0:00:00	17.9968	17.42	17.5952	18.7233	18.768	17.1577	17.0271
06/30/03	12:00:00	26.6626	26.8119	25.7333	23.1016	24.443	26.4497	26.1154
1/7/2003	0:00:00	18.5842	18.1017	18.2731	19.278	19.3005	17.9252	17.7874
1/7/2003	12:00:00	23.0776	23.4034	23.2707	23.2161	23.2584	23.2584	23.2402
2/7/2003	0:00:00	19.5088	19.351	19.351	19.6448	19.5373	19.3961	19.4186
2/7/2003	12:00:00	27.7643	27.864	26.9616	25.2029	26.0706	27.2363	27.1379
3/7/2003	0:00:00	18.2844	18.1017	18.1017	18.3229	18.2565	18.168	18.2122
3/7/2003	12:00:00	27.4729	27.7177	26.6304	24.4122	25.4864	26.9945	26.8379



4/7/2003	0:00:00	8.1231	8.0932	8.0278	8.1432	8.1231	8.0932	8.1432
4/7/2003	12:00:00	18.6288	19.7354	18.6397	15.5832	16.9836	18.9859	19.6615
5/7/2003	0:00:00	14.2692	14.1483	14.2272	14.7913	14.7543	13.8131	13.7449
5/7/2003	12:00:00	25.6888	26.1666	25.4231	23.4276	24.3136	25.5875	25.3286
6/7/2003	0:00:00	18.8181	18.6788	18.7903	19.278	19.1936	18.4786	18.4342
6/7/2003	12:00:00	21.6475	22.8734	22.1654	21.2563	21.6475	22.2065	22.2364
7/7/2003	0:00:00	13.078	13.0365	12.9743	13.0573	13.0573	13.0158	13.078
7/7/2003	12:00:00	8.2488	8.2836	8.1833	8.108	8.2234	8.3238	8.3843
8/7/2003	0:00:00	6.2824	6.0078	6.0477	6.1278	6.1078	6.1624	6.1278
8/7/2003	12:00:00	10.9028	11.1425	11.1017	11.0813	11.0813	10.9586	11.0097
9/7/2003	0:00:00	6.5618	6.3223	6.482	6.5618	6.5817	6.5418	6.6217
9/7/2003	12:00:00	11.6338	12.0238	11.8439	11.6133	11.6953	11.8234	11.9264
10/7/2003	0:00:00	6.9415	6.9566	6.8616	6.9566	6.9415	6.9415	6.9664
10/7/2003	12:00:00	18.1292	19.351	17.9747	13.1196	14.9395	18.7233	19.7068
11/7/2003	0:00:00	12.5654	12.2505	12.4828	13.1458	13.1873	11.9621	11.8645
11/7/2003	12:00:00	12.1064	12.4723	12.2917	11.6953	12.0238	12.1064	12.2093
12/7/2003	0:00:00	11.2088	10.8467	11.1017	11.5723	11.6133	10.6581	10.5971
12/7/2003	12:00:00	17.5787	17.5952	17.2507	16.3341	16.8316	17.3928	17.4035
07/13/03	0:00:00	9.912	9.8562	9.8562	9.9322	9.8917	9.912	9.912
07/13/03	12:00:00	11.3519	11.5723	11.3264	9.0685	9.9727	11.6953	12.1422
07/14/03	0:00:00	8.1833	8.0429	8.0278	8.108	8.1432	8.0932	8.1632
07/14/03	12:00:00	23.6583	23.9939	22.5926	17.5076	19.6615	23.7437	23.8776
07/15/03	0:00:00	9.0533	9.0431	8.9678	9.0533	9.0282	9.0431	9.0533
07/15/03	12:00:00	8.8668	9.1845	9.0282	8.7059	8.882	9.0533	9.2145
07/16/03	0:00:00	5.5692	5.3745	5.4095	5.4095	5.3948	5.5091	5.5493
07/16/03	12:00:00	6.9664	7.2866	7.1614	6.9016	6.9864	7.2866	7.2213
07/17/03	0:00:00	5.3249	5.1505	5.1505	5.3099	5.285	5.2151	5.2501
07/17/03	12:00:00	6.9864	7.0614	7.1165	6.9864	7.1165	7.0614	7.1414
07/18/03	0:00:00	8.0429	7.9173	7.9877	8.1833	8.0028	8.1432	8.083
07/18/03	12:00:00	13.3172	13.8131	13.4111	12.4828	12.8187	13.5361	13.7189
07/19/03	0:00:00	10.9178	10.9178	10.816	11.8439	11.3519	10.8467	10.5971
07/19/03	12:00:00	17.7215	17.8094	17.546	15.2685	16.291	17.7874	18.2844
07/20/03	0:00:00	8.9678	8.751	8.9476	9.5275	9.2046	8.8922	8.7863
07/20/03	12:00:00	27.9172	28.7849	27.0792	23.4641	25.1277	27.864	28.359
07/21/03	0:00:00	16.1404	15.7755	15.8878	16.5013	16.3772	15.6952	15.6472
07/21/03	12:00:00	28.5075	28.5075	27.4729	24.3875	25.892	28.359	28.1444
07/22/03	0:00:00	15.6098	15.3379	15.354	15.7113	15.6098	15.4549	15.4391
07/22/03	12:00:00	25.0838	25.4864	24.7094	21.4839	22.76	25.5622	25.8094
07/23/03	0:00:00	15.2898	15.0458	15.1094	15.3379	15.226	15.1891	15.226
07/23/03	12:00:00	16.6147	17.5241	17.0054	15.7113	16.291	16.9619	17.2507
07/24/03	0:00:00	10.6835	10.4548	10.3939	10.5208	10.5208	10.5208	10.5971
07/24/03	12:00:00	20.6662	21.1926	20.7066	19.5766	19.8432	20.9086	21.1169
07/25/03	0:00:00	17.0924	16.9619	16.9619	17.1306	17.0542	17.0706	17.0706
07/25/03	12:00:00	11.8439	11.8645	11.8133	11.8234	11.8133	11.9005	11.9005
07/26/03	0:00:00	11.4696	11.2905	11.311	11.3931	11.3931	11.434	11.4696
07/26/03	12:00:00	8.8668	9.0081	8.8668	8.882	8.8922	8.8922	9.0081
07/27/03	0:00:00	6.2075	6.2275	6.1876	6.482	6.4021	6.2075	6.2674
07/27/03	12:00:00	14.7543	15.2473	14.6909	12.1526	13.2497	14.86	15.5671
07/28/03	0:00:00	4.8712	4.5874	4.7318	4.8363	4.7964	4.7964	4.8115
07/28/03	12:00:00	6.2075	6.3321	6.427	6.2824	6.3321	6.427	6.5219
07/29/03	0:00:00	5.4095	5.3099	5.3099	5.4693	5.4095	5.3745	5.4095
07/29/03	12:00:00	20.5972	20.4422	20.0989	18.768	19.4863	20.2074	20.4305

07/30/03	0:00:00	8.0932	7.9275	7.9275	8.1231	8.0629	8.0028	8.0028
07/30/03	12:00:00	8.0278	8.6304	8.3439	7.7072	8.0028	8.3843	8.5701
07/31/03	0:00:00	5.4095	5.285	5.3448	5.4493	5.4294	5.3948	5.4095
07/31/03	12:00:00	11.3264	11.8234	11.2292	8.1833	9.5934	11.9005	12.643
1/8/2003	0:00:00	4.348	4.0838	4.0939	4.3679	4.2732	4.2484	4.2285
1/8/2003	12:00:00	15.067	15.0086	14.3168	11.7158	13.1873	14.4852	14.6276
2/8/2003	0:00:00	7.0215	6.8416	6.8017	6.9415	6.9216	6.9216	6.9566
2/8/2003	12:00:00	17.4419	17.42	16.6583	13.3694	15.0458	17.42	17.2671
3/8/2003	0:00:00	7.9676	7.762	7.6819	7.9026	7.8424	7.8625	7.8825
3/8/2003	12:00:00	19.8659	20.1902	19.5088	17.6171	18.3894	19.7978	19.8997
4/8/2003	0:00:00	7.3266	7.3466	7.2564	7.3266	7.3266	7.3266	7.3666
4/8/2003	12:00:00	13.8759	14.6276	14.0802	12.0653	12.9172	14.5062	14.6435
5/8/2003	0:00:00	9.4467	9.2145	9.2499	9.4467	9.3762	9.3911	9.3911
5/8/2003	12:00:00	3.7498	3.7498	3.69	3.7498	3.7698	3.7946	3.8743
6/8/2003	0:00:00	1.8762	1.7356	1.7156	1.8962	1.8509	1.8509	1.8308
6/8/2003	12:00:00	9.8463	10.5208	10.0893	9.4467	9.7703	10.0893	10.3127
7/8/2003	0:00:00	5.8682	5.629	5.629	5.9231	5.7885	5.8234	5.8434
7/8/2003	12:00:00	4.3879	4.5724	4.4476	4.2285	4.4029	4.5724	4.642
8/8/2003	0:00:00	0.7512	0.6502	0.6301	0.7512	0.7258	0.7258	0.7258
8/8/2003	12:00:00	2.1666	2.2968	2.2017	2.0915	2.1764	2.2968	2.3617
9/8/2003	0:00:00	6.6469	6.5068	6.5068	6.6668	6.6217	6.6469	6.6367
9/8/2003	12:00:00	21.1808	21.6065	20.7527	17.7874	19.4186	21.1926	21.935
10/8/2003	0:00:00	10.5108	10.4905	10.3583	10.5108	10.4548	10.4702	10.4702
10/8/2003	12:00:00	11.9005	12.3742	12.5447	12.1887	12.1526	12.5085	12.3073
11/8/2003	0:00:00	11.6133	11.5569	11.5159	11.6953	11.5569	11.6643	11.6133
11/8/2003	12:00:00	3.989	4.2732	4.1687	4.0838	4.1337	4.1687	4.2582
12/8/2003	0:00:00	1.5953	1.5302	1.4901	1.6153	1.5601	1.5601	1.5601
12/8/2003	12:00:00	8.6455	8.5701	8.3439	5.4294	6.8266	8.9123	9.4113
08/13/03	0:00:00	5.4294	5.3249	5.2501	5.3745	5.3647	5.3448	5.3647
08/13/03	12:00:00	6.9864	7.6668	7.4515	6.462	6.8115	7.5618	7.7219
08/14/03	0:00:00	6.2824	6.2275	6.2275	6.3472	6.3321	6.3223	6.3223
08/14/03	12:00:00	14.3326	14.7543	14.7702	12.6067	13.4787	15.1306	15.4391
08/15/03	0:00:00	11.168	10.8824	10.862	11.0813	11.0097	11.0609	11.0609
08/15/03	12:00:00	23.192	22.5688	22.76	19.0366	21.0242	23.0776	23.2885
08/16/03	0:00:00	14.4748	14.3168	14.3168	14.4852	14.4168	14.4323	14.4323
08/16/03	12:00:00	20.8102	21.7528	21.3669	17.2288	19.2555	21.9057	23.1016
08/17/03	0:00:00	8.3639	8.3639	8.2488	8.3639	8.3439	8.3439	8.3843
08/17/03	12:00:00	7.9877	8.1231	8.0932	7.9476	8.0028	8.2034	8.2034
08/18/03	0:00:00	4.348	4.1537	4.1687	4.3082	4.2883	4.2732	4.2883
08/18/03	12:00:00	9.4113	9.8562	9.7146	9.4315	9.5377	9.7146	9.8108
08/19/03	0:00:00	3.3906	3.0913	3.1312	3.3906	3.2709	3.2359	3.2359
08/19/03	12:00:00	7.7072	8.1833	8.1231	7.2866	7.6668	8.2034	8.2836
08/20/03	0:00:00	2.4168	2.3466	2.2217	2.3168	2.2968	2.3368	2.3617
08/20/03	12:00:00	8.4647	8.6455	8.726	8.3843	8.6455	8.5049	8.6455
08/21/03	0:00:00	6.0078	5.9231	5.9032	6.0477	6.0078	6.0078	6.0078
08/21/03	12:00:00	8.726	8.8064	8.8668	8.3439	8.5701	8.751	8.882
08/22/03	0:00:00	6.6668	6.462	6.4021	6.5817	6.5219	6.6017	6.5817
08/22/03	12:00:00	14.7279	15.4391	15.1891	14.5062	14.6276	15.354	15.3379
08/23/03	0:00:00	5.6839	5.6437	5.5692	5.6839	5.6437	5.6839	5.664
08/23/03	12:00:00	6.9864	7.7072	7.4266	6.9415	7.1165	7.4515	7.3866
08/24/03	0:00:00	7.2866	7.2364	7.2213	7.4066	7.3266	7.2866	7.3466
08/24/03	12:00:00	17.3928	16.8697	16.7883	14.0173	15.4549	17.3326	17.5787

08/25/03	0:00:00	4.5623	4.5074	4.4476	4.5623	4.5074	4.5473	4.5473
08/25/03	12:00:00	6.0078	6.2674	6.3024	6.1078	6.1624	6.1725	6.2075
08/26/03	0:00:00	6.0477	5.8832	5.8434	6.0078	5.9829	5.9829	6.0078
08/26/03	12:00:00	12.5241	12.5241	12.6687	12.1732	12.3897	12.6687	12.8757
08/27/03	0:00:00	8.3037	8.2488	8.2034	8.3238	8.2836	8.2836	8.3037
08/27/03	12:00:00	9.3762	9.4315	9.5377	9.2145	9.4113	9.5377	9.6895
08/28/03	0:00:00	4.9708	4.931	4.8712	4.9911	4.9509	4.9509	4.9708
08/28/03	12:00:00	7.5818	7.7072	7.9173	7.612	7.7072	7.9275	7.9275
08/29/03	0:00:00	5.7087	5.7087	5.6437	5.7287	5.6937	5.7087	5.7287
08/29/03	12:00:00	13.0001	12.7671	12.8343	9.0282	10.9435	13.6459	14.3061
08/30/03	0:00:00	3.3706	3.3507	3.2908	3.3706	3.3706	3.3706	3.3906
08/30/03	12:00:00	15.4978	14.86	15.3111	12.8187	14.1012	15.3753	15.7969
08/31/03	0:00:00	11.434	11.2497	11.2088	11.434	11.3368	11.3519	11.3519
08/31/03	12:00:00	18.8573	18.5842	18.7011	16.8804	17.9747	18.6065	18.9859
1/9/2003	0:00:00	3.8743	3.8894	3.7799	3.8894	3.8743	3.8743	3.9093
1/9/2003	12:00:00	4.9163	5.1505	5.1903	4.9509	5.0558	5.2151	5.2501
2/9/2003	0:00:00	3.4955	3.4805	3.4105	3.4955	3.4805	3.4805	3.5155
2/9/2003	12:00:00	17.7708	16.5339	17.3108	13.9545	15.845	17.5787	17.9252
3/9/2003	0:00:00	8.7662	8.5902	8.5701	8.7863	8.726	8.7059	8.7059
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-4.5069	1	-4.3858	-4.4227	-4.4068	-4.6544	116.4159	-9.0261	-6.4003
1.5601	1	0.897	0.897	1.0783	2.1764	115.2276	-9.0546	-6.4542
-0.4108	1	-0.355	-0.4005	-0.4311	-0.5884	117.3067	-9.0998	-6.5137
4.2582	1	3.5952	3.9292	6.1725	3.3307	116.9681	-9.1164	-6.557
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3.6103	1	2.6166	2.8416	5.0907	2.5016	118.4514	-9.1449	-6.5734
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5.7885	1	4.8712	4.931	7.7722	4.3281	119.2816	-9.1449	-6.6004
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0.7915	1	0.3125	0.4487	1.0328	0.8871	-0.4005	-9.1164	-6.6441
-1.6024	1	-1.6024	-1.7047	-1.7047	-1.6638	-0.2537	-9.1164	-6.6441
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-2.0586	1	-2.8469	-2.6867	-2.3669	-1.8481	-0.1728	-8.8685	-6.6657
-6.557	1	-6.557	-6.5844	-6.6441	-6.6004	-0.2537	-8.8685	-6.7091
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-8.0697	1	-8.0254	-8.0865	-8.0865	-8.1308	-0.8118	-8.7617	-6.7469
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-10.9097	1	-10.7519	-10.933	-10.8629	-11.0975	-1.357	-8.6889	-6.7579
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-2.3362	1	-3.3503	-3.0489	-2.1202	-2.3669	-2.3875	-8.5432	-6.8177
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-5.0299	1	-5.9531	-5.7279	-2.6972	-6.1522	-3.7359	-8.4648	-6.8177
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7.8224	1	8.0629	9.7146	13.3694	5.6937	-2.3207	-8.2642	-6.8612
-6.3787	1	-6.2977	-6.4003	-6.3787	-6.4978	-0.1323	-8.2029	-6.883
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-4.0183	1	-4.0183	-4.0183	-4.0444	-4.0183	-0.2133	-8.1476	-6.8994
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-6.7469	1	-6.7743	-6.8395	-6.8395	-6.796	-0.355	-8.0421	-6.8994
-2.7128	1	-3.4438	-3.0699	-2.9144	-2.6867	-0.4005	-7.9811	-6.8994

-5.7279	1	-5.7868	-5.8082	-5.8297	-5.8297	-0.4514	-7.9531	-6.9265
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-7.6166	1	-7.6274	-7.6495	-7.6715	-7.6715	-1.4644	-7.7984	-6.9265
-6.0175	1	-7.0956	-6.7251	-6.0552	-6.039	-2.2384	-7.7322	-6.9265
-8.8291	1	-8.8685	-8.8965	-8.8965	-8.8799	-2.0586	-7.6881	-6.9265
-2.7541	1	-3.2151	-2.7954	-0.8934	-3.8143	-2.6092	-7.6715	-6.9701
-5.2266	1	-5.9158	-6.1091	-6.0552	-4.6915	-1.5616	-7.6166	-6.9265
3.0763	1	1.7156	2.0363	4.8363	1.6755	-1.8635	-7.5834	-6.9483
-3.023	1	-3.6627	-3.7359	-3.6835	-2.7747	-1.1784	-7.5394	-6.9265
6.482	1	5.4693	5.8532	7.9275	5.5241	-1.1581	-7.4955	-6.9483
3.4305	1	2.9715	2.9365	2.9365	3.5554	-0.8321	-7.457	-6.9483
5.3745	1	4.2285	5.3948	7.5618	3.7799	-0.7052	-7.4462	-6.9483
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6.6469	1	6.1624	5.8035	6.9566	6.462	1.8308	-7.3857	-6.9701
0.4335	1	0.5951	0.4689	0.489	0.3529	-0.3703	-7.2981	-6.9265
3.0913	1	2.5216	2.6965	3.6351	2.6166	-0.629	-7.2816	-6.9483
-1.0969	1	-1.0512	-1.0969	-1.1377	-1.1581	-0.629	-7.2543	-6.9265
1.0632	1	0.4335	0.9172	0.8871	1.0632	-0.6493	-7.2102	-6.9265
-1.7507	1	-1.7917	-1.7917	-1.8326	-1.8122	-0.5731	-7.1503	-6.9154
-1.2092	1	-1.7507	-1.1938	-1.3162	-1.0612	-0.5884	-7.1503	-6.9265
-5.0299	1	-5.0779	-5.1204	-5.1204	-5.0779	-0.629	-7.1067	-6.9701
-1.3008	1	-1.9916	-1.5358	-1.5358	-1.1173	-0.6493	-7.0956	-6.9154
-4.5227	1	-4.5912	-4.6122	-4.5912	-4.549	-0.7711	-7.0737	-6.9483
-0.0514	1	-0.8831	-0.4108	0.1106	-0.2285	-0.8677	-7.0137	-6.9154
-3.6469	1	-3.6835	-3.6835	-3.715	-3.6835	-0.7711	-7.0137	-6.9483
1.0931	1	-0.0663	0.146	0.5951	1.6153	-0.8677	-6.9265	-6.9154
0.9172	1	0.2268	0.146	0.1864	1.2742	-0.629	-6.9154	-6.9154
10.5768	1	9.8562	10.0893	11.4082	9.9475	-0.5072	-6.883	-6.9154
8.0932	1	8.0429	8.0028	7.9275	8.0932	126.7793	-6.8395	-6.8994
15.5244	1	15.1306	14.9238	15.6952	15.3379	126.0314	-6.8177	-6.9154
0.4689	1	0.4689	0.4335	0.4084	0.4335	126.0314	-6.7579	-6.8994
6.6217	1	5.9431	6.5618	6.442	6.5418	122.4267	-6.7579	-6.9154
0.4084	1	0.4084	0.4084	0.3529	0.3529	121.1313	-6.7251	-6.8994
3.7299	1	3.3507	3.5155	3.5753	3.7946	110.7739	-6.7091	-6.8994
-1.3724	1	-1.8481	-1.9146	-1.9301	-1.2092	103.0195	-6.6441	-6.883
8.6304	1	7.2764	8.0932	10.3583	7.2866	106.701	-6.622	-6.8994
2.8416	1	2.1764	2.1666	2.1764	3.176	0.0298	-6.6004	-6.8994
16.642	1	15.0882	15.8344	18.2565	15.3271	126.7793	-6.5734	-6.883
8.751	1	8.8266	8.9476	8.9123	8.4647	127.9988	-6.5354	-6.883
11.0251	1	9.988	10.6581	13.1873	9.366	127.9988	-6.4978	-6.8612
0.0851	1	0.0954	0.0851	0.0043	0.0298	126.7793	-6.4542	-6.8612
7.9275	1	7.1964	8.2836	8.3992	7.612	126.7793	-6.4109	-6.8395
8.083	1	8.0932	7.742	7.6018	8.6455	128.6253	-6.4003	-6.8395
11.9621	1	10.4295	11.9621	14.138	9.8108	127.5339	-6.4003	-6.8612
4.1537	1	3.9394	3.9544	3.8894	4.3679	128.6253	-6.3624	-6.8395
11.8234	1	11.1425	11.5723	12.9172	11.0609	128.6253	-6.3409	-6.8395
0.7714	1	0.8067	0.7915	0.7714	0.7258	127.5339	-6.2761	-6.796
3.4305	1	2.8216	3.3307	3.2709	3.3307	126.7793	-6.2546	-6.8177
0.7361	1	0.7361	0.8469	0.7258	0.711	124.8793	-6.2277	-6.796
13.4685	1	11.9005	12.3742	14.7279	11.9416	127.5339	-6.2115	-6.796

6.442	1	6.0078	5.7885	5.7636	6.9664	130.576	-6.1899	-6.8177
10.5208	1	9.0685	10.2515	12.643	8.5401	129.2633	-6.1253	-6.7579
5.0757	1	4.9911	4.9708	4.931	5.0907	129.2633	-6.1091	-6.7743
14.3326	1	12.1526	13.4787	16.1189	12.4723	127.9988	-6.0876	-6.7743
0.4487	1	0.4186	0.4186	0.3882	0.4186	128.6253	-6.0552	-6.7469
5.9032	1	5.1106	5.7486	6.0078	5.4095	127.9988	-6.039	-6.7579
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5.0309	1	3.7299	4.9013	6.033	3.8495	126.7793	-5.9802	-6.7469
-2.2024	1	-2.8161	-2.9402	-2.8469	-2.0586	127.5339	-5.9158	-6.7251
7.2866	1	5.4493	7.1263	9.8917	4.8911	-0.0663	-5.9372	-6.7469
-0.0312	1	-1.1784	-1.0766	-1.1581	0.252	0.4487	-5.8834	-6.7251
6.2075	1	4.642	5.8434	7.4866	4.4875	-0.0766	-5.8834	-6.7469
3.9544	1	1.6906	1.7008	1.7156	4.9163	1.1132	-5.8511	-6.7251
15.354	1	13.2238	14.5221	17.5679	13.1873	128.6253	-5.8297	-6.7091
4.8115	1	4.7964	4.7318	4.6671	4.8115	132.1122	-5.7654	-6.6874
7.4866	1	6.6668	7.0614	7.2866	7.6267	128.6253	-5.744	-6.6874
2.4368	1	2.3768	2.4368	2.4168	2.3168	129.2633	-5.7279	-6.6874
5.9231	1	5.0558	5.8682	6.1477	5.4693	127.9988	-5.7173	-6.6874
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8.52	1	7.3866	7.9877	10.2312	7.0015	129.9135	-5.6693	-6.6441
0.1864	1	0.2417	0.2268	0.2268	0.0954	127.5339	-5.6693	-6.6441
5.6437	1	5.0558	6.0679	6.6217	4.7964	128.6253	-5.6266	-6.622
5.6039	1	3.7299	3.7946	3.8145	6.5219	129.9135	-5.6048	-6.622
8.3843	1	6.7215	7.9026	10.2721	6.442	127.9988	-5.5835	-6.622
1.2742	1	1.2189	1.2189	1.1936	1.2189	127.9988	-5.5621	-6.6004
10.6581	1	9.2145	10.7395	12.4155	8.8922	129.9135	-5.5355	-6.6004
4.4127	1	4.3281	4.4676	4.2484	4.5273	131.77	-5.4981	-6.5844
18.8181	1	17.7434	17.6171	20.0762	17.2507	129.9135	-5.4981	-6.6004
4.7318	1	4.5724	4.4676	4.2732	4.9509	131.77	-5.4607	-6.5844
14.9926	1	14.1012	14.5062	16.8804	13.4685	132.6438	-5.4181	-6.5734
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8.1432	1	6.5817	7.742	10.0893	6.3321	129.2633	-5.3755	-6.557
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19.8997	1	18.6397	19.3005	21.4839	18.662	132.6438	-5.3277	-6.5354
15.5671	1	13.9335	13.9857	14.138	16.5229	137.802	-5.3064	-6.5354
22.3133	1	20.8102	21.8587	24.3629	20.8102	137.802	-5.2266	-6.4542
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22.9516	1	22.5095	22.5095	22.6641	23.0776	140.5772	-5.0299	-6.4003
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6.2425	0
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19.5259	0

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7.4066	0
15.354	0



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6.0879	0
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8.2688	0
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4.9509	0
7.3466	0
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15.3271	0
3.3307	0
14.3747	0
11.4696	0
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3.7799	0
4.4676	0
3.4556	0
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8.8922	0
9.5073	0



04/17/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/17/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/18/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/18/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/19/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/19/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/20/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/20/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/21/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/21/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/22/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/22/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/23/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
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04/24/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/24/03	12:00:00	3.1561	2.6766	2.2417	2.0514	2.0915	1.8308
04/25/03	0:00:00	-4.291	-4.3858	-4.097	-4.1912	-4.291	-4.2122
04/25/03	12:00:00	2.3617	2.0363	1.7809	1.5953	1.756	1.4348
04/26/03	0:00:00	-0.8831	-0.9341	-0.8118	-0.9901	-0.9901	-1.0512
04/26/03	12:00:00	8.7362	8.3439	9.4467	9.2145	7.9476	9.5732
04/27/03	0:00:00	-1.9146	-1.8736	-1.8481	-1.7816	-1.8481	-1.8481
04/27/03	12:00:00	7.5818	7.0516	8.108	8.083	6.5817	8.6706
04/28/03	0:00:00	-1.0308	-1.0969	-0.9341	-1.0105	-1.1173	-1.0512
04/28/03	12:00:00	10.1298	9.457	10.5208	10.5768	9.0282	11.0609
04/29/03	0:00:00	-1.6125	-1.956	-1.6125	-1.8941	-1.8481	-1.8941
04/29/03	12:00:00	2.4567	2.4266	1.8108	2.2217	1.9714	2.1115
04/30/03	0:00:00	-1.7917	-1.8326	-1.7816	-1.7712	-1.7712	-1.7917
04/30/03	12:00:00	3.5452	3.301	3.4305	3.3906	3.0363	3.3906
1/5/2003	0:00:00	-3.4335	-3.4178	-3.2774	-3.2515	-3.2151	-3.2669
1/5/2003	12:00:00	0.4084	0.0298	0.1106	0.2417	-0.3145	0.252
2/5/2003	0:00:00	-6.3193	-6.3083	-6.2115	-6.1684	-5.9693	-6.2115
2/5/2003	12:00:00	1.8762	1.1534	1.796	1.5601	0.711	1.6153
3/5/2003	0:00:00	-5.9531	-5.894	-5.7868	-5.744	-5.6266	-5.7654
3/5/2003	12:00:00	-2.5886	-2.8317	-2.6092	-2.4855	-2.9765	-2.5061
4/5/2003	0:00:00	-7.5286	-7.5286	-7.32	-7.32	-7.1285	-7.2816
4/5/2003	12:00:00	0.1662	-0.4514	0.5749	0.6908	-0.9138	1.6255
5/5/2003	0:00:00	-9.7702	-9.8678	-9.3714	-9.6789	-9.3145	-9.5988
5/5/2003	12:00:00	8.4647	7.1614	8.9123	8.1432	6.7068	8.6558
6/5/2003	0:00:00	-4.1073	-4.2332	-3.9974	-4.0654	-4.097	-4.0863
6/5/2003	12:00:00	1.1534	0.6908	0.897	1.0632	0.1864	1.3345
7/5/2003	0:00:00	-8.5432	-8.4816	-8.4092	-8.3756	-7.8926	-8.3979
7/5/2003	12:00:00	-0.355	-0.7914	0.0851	0.3681	-1.2907	1.1132
8/5/2003	0:00:00	-6.9701	-7.0029	-6.7743	-6.7743	-6.622	-6.796
8/5/2003	12:00:00	3.301	2.8766	3.7698	3.9093	2.3617	4.4127
9/5/2003	0:00:00	-2.1562	-2.3362	-2.1202	-2.3362	-2.259	-2.3568
9/5/2003	12:00:00	14.712	13.3694	14.7702	14.3326	12.7257	14.8971
10/5/2003	0:00:00	-5.5621	-5.6479	-5.2799	-5.4768	-5.2638	-5.4502
10/5/2003	12:00:00	-3.2669	-3.2774	-3.4438	-3.1321	-3.2151	-3.1838
11/5/2003	0:00:00	-3.7776	-3.7776	-3.7359	-3.6835	-3.715	-3.7359
11/5/2003	12:00:00	2.3768	2.0363	2.1013	2.0514	1.5401	2.1013
12/5/2003	0:00:00	-6.2546	-6.2277	-6.1412	-6.0661	-5.8511	-6.1091
12/5/2003	12:00:00	0.0145	-0.2133	-0.0663	0.0851	-0.4311	0.0954

05/13/03	0:00:00	-5.1788	-5.1788	-5.0407	-4.9664	-5.0299	-4.9664
05/13/03	12:00:00	0.3376	-0.1472	0.0298	0.0298	-0.4667	0.0298
05/14/03	0:00:00	-5.1788	-5.1204	-5.0407	-5.0299	-4.8234	-5.0407
05/14/03	12:00:00	-2.9972	-3.1944	-3.2515	-3.0336	-3.5636	-2.9402
05/15/03	0:00:00	-6.8395	-6.796	-6.7091	-6.6547	-6.4542	-6.6657
05/15/03	12:00:00	-1.1277	-1.3162	-1.5358	-1.2192	-1.7047	-1.2192
05/16/03	0:00:00	-7.9147	-7.8705	-7.7543	-7.7047	-7.4955	-7.7047
05/16/03	12:00:00	2.9814	2.6615	2.5216	2.9166	1.796	3.2908
05/17/03	0:00:00	-2.7334	-3.4438	-3.1529	-3.8979	-3.0489	-3.9974
05/17/03	12:00:00	6.7618	6.2523	7.2764	7.2066	5.8234	7.9275
05/18/03	0:00:00	-2.259	-2.9972	-2.5886	-3.1321	-2.5216	-3.1944
05/18/03	12:00:00	9.3911	9.1845	9.8562	9.8562	8.751	10.2821
05/19/03	0:00:00	3.7149	3.301	3.4305	3.0514	3.2908	2.8966
05/19/03	12:00:00	10.7802	9.8108	11.4901	11.0251	9.649	11.7568
05/20/03	0:00:00	-0.1728	-0.355	-0.1171	-0.2942	-0.1728	-0.3145
05/20/03	12:00:00	12.2299	11.6953	12.2917	12.24	11.168	12.4155
05/21/03	0:00:00	1.0783	1.0328	1.0529	1.0529	1.0127	0.9574
05/21/03	12:00:00	7.0814	6.9216	7.2213	7.2364	6.4921	7.5217
05/22/03	0:00:00	-0.5731	-0.5731	-0.5275	-0.4919	-0.5478	-0.5478
05/22/03	12:00:00	4.642	4.1785	4.6521	4.5074	4.1537	4.4676
05/23/03	0:00:00	-1.3824	-1.3824	-1.3008	-1.26	-1.2907	-1.2754
05/23/03	12:00:00	1.9162	1.5101	1.6906	1.7356	1.3144	1.6554
05/24/03	0:00:00	-4.6703	-4.6333	-4.5069	-4.4647	-4.354	-4.4858
05/24/03	12:00:00	-0.7052	-0.7711	-0.6493	-0.5731	-0.7914	-0.5478
05/25/03	0:00:00	-4.1912	-4.165	-4.165	-4.0286	-3.9974	-4.0654
05/25/03	12:00:00	3.9394	3.4556	3.9691	3.8345	3.141	3.9292
05/26/03	0:00:00	-2.9402	-2.9144	-2.8161	-2.7128	-2.8161	-2.7128
05/26/03	12:00:00	5.1903	4.931	4.8115	4.8216	4.6671	4.6273
05/27/03	0:00:00	1.5401	1.0328	1.239	0.8166	1.4148	0.711
05/27/03	12:00:00	11.311	11.0913	11.434	11.5005	10.6074	11.7158
05/28/03	0:00:00	9.3911	8.7059	9.1845	8.4647	8.7863	8.3238
05/28/03	12:00:00	16.3609	15.7755	16.1189	15.6259	15.4123	15.4391
05/29/03	0:00:00	1.2542	1.1534	1.3345	1.2742	1.3144	1.239
05/29/03	12:00:00	8.0126	7.762	8.0028	7.8523	7.5818	7.8625
05/30/03	0:00:00	0.6605	0.6301	0.7512	0.7915	0.6908	0.7512
05/30/03	12:00:00	5.5091	5.2501	5.3099	5.2501	5.0456	5.1403
05/31/03	0:00:00	-1.1377	-1.4386	-1.3162	-1.5461	-1.0512	-1.6024
05/31/03	12:00:00	7.612	7.4666	8.0126	8.2234	7.0015	8.9275
1/6/2003	0:00:00	3.0763	2.7417	2.8766	2.5967	2.9964	2.5016
1/6/2003	12:00:00	15.6259	15.1306	15.9363	15.6259	14.7913	16.0221
2/6/2003	0:00:00	10.6174	10.2924	10.816	10.4142	10.4548	10.3583
2/6/2003	12:00:00	13.4319	12.8187	14.0593	13.9177	12.5654	14.6435
3/6/2003	0:00:00	2.8115	2.4567	2.7316	2.3617	2.9365	2.2968
3/6/2003	12:00:00	12.8085	12.0443	13.0573	12.4828	11.9005	12.4828
4/6/2003	0:00:00	9.3306	8.751	8.7863	8.2688	8.882	8.0429
4/6/2003	12:00:00	14.3168	13.6196	15.067	14.86	13.5361	15.5671
5/6/2003	0:00:00	5.3099	4.8712	5.1704	4.722	5.2302	4.642
5/6/2003	12:00:00	14.6909	14.3537	14.8232	14.6276	13.7295	14.8812
6/6/2003	0:00:00	1.4499	1.4749	1.5401	1.6354	1.5401	1.6153
6/6/2003	12:00:00	6.7215	6.3321	6.6868	6.5618	6.1725	6.462
7/6/2003	0:00:00	1.8611	1.756	2.0715	2.0363	2.0514	2.0715
7/6/2003	12:00:00	15.8664	15.354	16.28	16.0974	14.8388	16.5229

8/6/2003	0:00:00	11.3519	10.5564	10.9435	10.0388	11.1221	9.9475
8/6/2003	12:00:00	12.8085	12.0858	13.4787	13.3903	11.9264	13.9857
9/6/2003	0:00:00	5.7885	5.5692	5.8434	5.614	5.8035	5.6039
9/6/2003	12:00:00	13.2654	12.8914	13.7031	13.6822	12.5447	14.2902
10/6/2003	0:00:00	0.8067	0.7512	0.8871	0.897	0.7915	0.8871
10/6/2003	12:00:00	7.9026	7.2866	8.0429	7.6018	6.7215	7.7072
11/6/2003	0:00:00	-0.2537	-0.3145	-0.3045	-0.3145	-0.4005	-0.4005
11/6/2003	12:00:00	5.6839	5.2948	5.6937	5.3448	4.7318	5.6039
12/6/2003	0:00:00	-2.3669	-2.5679	-2.5061	-2.599	-2.4493	-2.666
12/6/2003	12:00:00	7.6018	7.0215	8.2034	7.8224	6.3223	8.6455
06/13/03	0:00:00	0.5749	-0.2133	-0.3045	-0.6087	-0.2537	-0.7255
06/13/03	12:00:00	8.0028	7.3866	8.334	8.52	6.6367	9.0685
06/14/03	0:00:00	3.176	2.1764	2.3368	1.4499	2.1315	1.239
06/14/03	12:00:00	16.0759	15.2581	16.28	15.6686	14.5062	16.4472
06/15/03	0:00:00	5.7287	5.3249	5.5892	5.1505	5.3099	5.0456
06/15/03	12:00:00	6.8914	6.5817	6.6868	6.4921	6.3321	6.3871
06/16/03	0:00:00	2.8115	2.7417	2.9964	2.8567	2.8216	2.8216
06/16/03	12:00:00	8.726	7.8825	8.8922	7.8224	7.1165	7.6921
06/17/03	0:00:00	1.5101	1.0783	1.4499	0.9172	1.2087	0.897
06/17/03	12:00:00	9.5073	8.4897	9.8108	8.9879	7.742	8.9476
06/18/03	0:00:00	0.6707	0.6502	0.7915	0.7714	0.6908	0.7258
06/18/03	12:00:00	9.8562	8.9678	9.988	8.4094	8.6706	8.4446
06/19/03	0:00:00	5.011	4.1138	4.3679	3.6201	4.3281	3.3307
06/19/03	12:00:00	8.3843	8.1734	8.7863	9.2046	7.8523	9.0081
06/20/03	0:00:00	1.4749	1.4499	1.5101	1.5302	1.4598	1.4499
06/20/03	12:00:00	13.4996	12.4828	13.834	12.7515	12.2093	12.586
06/21/03	0:00:00	7.2866	6.0977	6.9864	5.5241	6.6217	5.2151
06/21/03	12:00:00	19.8886	18.9243	19.8261	19.4637	17.9252	19.8432
06/22/03	0:00:00	6.9415	6.033	6.4021	5.3647	6.2425	5.2053
06/22/03	12:00:00	16.0221	15.1306	15.7755	15.1094	14.8388	15.4123
06/23/03	0:00:00	8.7662	7.0814	7.4266	6.0078	7.0414	5.7885
06/23/03	12:00:00	9.8463	9.5073	10.2821	9.6994	9.2347	9.5934
06/24/03	0:00:00	3.7498	3.176	3.4455	2.6366	3.4805	2.4266
06/24/03	12:00:00	10.4702	10.5411	10.7802	11.3931	10.2821	11.311
06/25/03	0:00:00	8.4245	8.1432	7.8224	7.8021	8.0278	7.5467
06/25/03	12:00:00	17.8094	17.914	18.0409	18.7347	17.6995	18.6288
06/26/03	0:00:00	15.1306	14.7279	14.3747	14.3061	14.5747	13.8917
06/26/03	12:00:00	19.5992	19.6163	19.934	20.4651	19.4637	20.2647
06/27/03	0:00:00	10.333	9.8463	9.7146	9.3911	9.7299	9.1491
06/27/03	12:00:00	15.9096	16.0221	16.3341	16.9836	15.9096	16.9402
06/28/03	0:00:00	10.0537	9.831	9.6994	9.5732	9.7501	9.3104
06/28/03	12:00:00	17.3108	17.42	17.7546	18.4342	17.2507	18.2844
06/29/03	0:00:00	13.4527	13.3329	13.1352	13.2081	13.2654	12.9172
06/29/03	12:00:00	21.9057	22.0234	22.3133	23.0657	21.7882	22.8855
06/30/03	0:00:00	16.7883	16.1777	16.0112	15.6098	16.1404	15.1094
06/30/03	12:00:00	24.4122	24.6288	24.9277	25.8474	24.2704	26.3016
1/7/2003	0:00:00	17.3763	16.9402	16.642	16.5339	16.9185	16.108
1/7/2003	12:00:00	23.0177	22.9276	23.1016	23.0417	22.6047	23.0417
2/7/2003	0:00:00	19.5373	19.5088	19.5088	19.6163	19.4526	19.4637
2/7/2003	12:00:00	25.7333	25.8094	26.154	26.5656	25.6128	27.1118
3/7/2003	0:00:00	18.3451	18.3066	18.3672	18.412	18.3229	18.2731
3/7/2003	12:00:00	24.859	24.9588	25.4674	25.892	24.6414	26.6499

4/7/2003	0:00:00	8.2836	8.2034	8.334	8.1734	8.1734	8.0932
4/7/2003	12:00:00	17.683	16.9729	17.8094	16.1777	16.4797	15.8664
5/7/2003	0:00:00	12.855	12.8757	12.3536	12.6531	12.7359	12.6274
5/7/2003	12:00:00	24.5297	24.6288	24.7469	25.6888	23.7193	25.9685
6/7/2003	0:00:00	17.8314	17.8314	17.3928	17.6556	17.7434	17.5076
6/7/2003	12:00:00	22.4023	21.6591	21.6944	21.3963	21.3669	21.4602
7/7/2003	0:00:00	13.1666	13.0678	13.1666	13.0365	13.0678	12.8757
7/7/2003	12:00:00	8.3992	8.3639	8.4094	8.3639	8.3439	8.3037
8/7/2003	0:00:00	6.2425	6.2674	6.2523	6.3472	6.2425	6.2674
8/7/2003	12:00:00	10.1857	10.2162	10.1199	10.3127	10.2312	10.333
9/7/2003	0:00:00	6.8266	6.8017	6.7068	6.6469	6.7316	6.4921
9/7/2003	12:00:00	11.4696	11.1017	11.5723	11.1425	11.2601	11.2088
10/7/2003	0:00:00	7.0414	7.0215	6.9864	6.9864	7.0015	6.9216
10/7/2003	12:00:00	16.7883	15.9683	15.9683	15.2473	15.3965	15.4391
11/7/2003	0:00:00	10.1857	10.3736	9.8562	11.9416	10.9028	10.5108
11/7/2003	12:00:00	10.7652	10.9435	10.7192	10.8824	10.8467	10.7956
12/7/2003	0:00:00	9.6338	9.7906	9.3306	11.0609	10.1199	9.6994
12/7/2003	12:00:00	16.7016	16.6583	16.9402	17.3215	16.642	17.2889
07/13/03	0:00:00	10.1199	10.0537	10.1096	9.9727	9.9322	9.8917
07/13/03	12:00:00	9.7906	10.0082	9.831	10.348	9.457	11.168
07/14/03	0:00:00	8.2034	8.0278	8.2034	8.0429	8.0278	7.9676
07/14/03	12:00:00	19.6448	18.3672	19.4637	18.2122	17.0435	19.5373
07/15/03	0:00:00	9.2902	9.1088	9.2902	9.0533	8.9879	8.9879
07/15/03	12:00:00	8.4795	8.3992	8.334	8.5701	8.3037	8.3639
07/16/03	0:00:00	5.6039	5.3099	5.5692	5.2151	5.2501	5.3249
07/16/03	12:00:00	7.1964	7.4417	7.3666	7.5316	7.2364	7.3115
07/17/03	0:00:00	5.3448	5.2501	5.2302	5.2501	5.2501	5.2151
07/17/03	12:00:00	6.6217	6.5418	6.4921	6.6367	6.5418	6.5068
07/18/03	0:00:00	8.3238	8.108	8.3238	7.9026	8.0429	8.0126
07/18/03	12:00:00	11.4082	11.7773	11.7363	12.2711	11.6133	11.885
07/19/03	0:00:00	9.8562	10.0285	9.8562	9.831	10.3583	10.1501
07/19/03	12:00:00	15.3271	16.3987	16.0112	17.914	15.6791	16.8316
07/20/03	0:00:00	9.1845	9.2046	9.0081	9.0282	9.366	9.2046
07/20/03	12:00:00	22.9516	23.4034	24.0553	25.1088	22.6047	23.5488
07/21/03	0:00:00	15.4765	15.3965	15.1891	15.1891	15.6098	15.5457
07/21/03	12:00:00	26.0899	25.5116	27.3219	27.4073	24.5606	25.8666
07/22/03	0:00:00	15.845	15.0882	15.3753	14.9079	15.0242	15.0242
07/22/03	12:00:00	24.4122	24.5606	24.0184	25.6888	21.8587	24.4308
07/23/03	0:00:00	15.6791	15.1306	15.5244	15.0242	15.1571	15.067
07/23/03	12:00:00	15.6259	16.1887	15.9897	16.3987	15.6791	15.765
07/24/03	0:00:00	11.0251	10.5971	10.816	10.5564	10.5208	10.5768
07/24/03	12:00:00	19.8886	21.7705	19.8089	21.6299	19.323	20.5396
07/25/03	0:00:00	17.3108	17.3108	17.3215	17.3215	17.2671	17.2671
07/25/03	12:00:00	12.4723	11.9109	11.885	11.9005	11.8234	11.8645
07/26/03	0:00:00	11.4082	11.6643	11.6133	11.6543	11.5159	11.5824
07/26/03	12:00:00	8.726	8.6304	8.5902	8.7059	8.6706	8.5902
07/27/03	0:00:00	6.427	6.0679	6.0078	6.033	6.033	5.998
07/27/03	12:00:00	11.7568	13.6459	13.1458	13.7816	13.9754	13.2081
07/28/03	0:00:00	5.2053	5.2053	5.2302	5.2948	4.8363	5.2151
07/28/03	12:00:00	6.0977	6.5418	6.6868	6.7618	6.6217	6.6017
07/29/03	0:00:00	5.5892	5.5343	5.3948	5.4892	5.3745	5.4294
07/29/03	12:00:00	18.1017	19.0869	19.0142	19.0142	19.2555	18.8071

07/30/03	0:00:00	8.1833	8.0932	7.9476	8.083	7.9476	8.0278
07/30/03	12:00:00	7.5316	8.5401	9.0081	9.0685	9.457	8.6857
07/31/03	0:00:00	5.4294	5.3948	5.2948	5.3948	5.3249	5.3249
07/31/03	12:00:00	9.7146	11.4082	12.2299	10.9997	11.5569	11.0813
1/8/2003	0:00:00	4.7964	4.3679	4.1687	4.2582	3.8743	4.2285
1/8/2003	12:00:00	11.8439	12.5085	13.0365	12.431	14.1852	12.3174
2/8/2003	0:00:00	7.0516	6.9415	6.7467	6.8266	6.6017	6.8266
2/8/2003	12:00:00	14.8232	17.5679	20.1734	18.1901	19.0755	17.5241
3/8/2003	0:00:00	7.9877	7.8021	7.5316	7.6267	7.3666	7.6668
3/8/2003	12:00:00	17.3928	17.8094	17.914	17.9527	19.1428	17.0924
4/8/2003	0:00:00	7.4515	7.3666	7.4515	7.4417	7.4417	7.3764
4/8/2003	12:00:00	12.5085	14.4009	15.2473	15.4978	16.0974	14.1693
5/8/2003	0:00:00	9.6338	9.6185	9.4467	9.553	9.3507	9.5275
5/8/2003	12:00:00	3.9292	3.7698	3.8345	3.8495	3.7299	3.5753
6/8/2003	0:00:00	2.0213	2.0114	1.756	1.9313	1.7809	1.9412
6/8/2003	12:00:00	8.3992	9.4113	9.9322	9.9574	11.0251	9.3507
7/8/2003	0:00:00	6.6017	6.5618	6.3472	6.462	6.1876	6.5219
7/8/2003	12:00:00	4.5874	4.9509	5.8832	5.6839	5.5091	5.0558
8/8/2003	0:00:00	0.9828	0.897	0.7512	0.867	0.7361	0.711
8/8/2003	12:00:00	2.0363	2.2565	2.7715	2.6965	2.6166	2.2017
9/8/2003	0:00:00	6.5817	6.5817	6.2523	6.462	6.1725	6.5068
9/8/2003	12:00:00	17.5241	20.2988	21.1344	20.6432	23.2707	19.758
10/8/2003	0:00:00	10.6581	10.5971	10.6074	10.5768	10.6988	10.4548
10/8/2003	12:00:00	11.4186	12.431	14.0015	13.5778	14.3168	12.4516
11/8/2003	0:00:00	11.8234	11.7158	11.4901	11.6643	11.4491	11.6133
11/8/2003	12:00:00	3.7946	4.0838	4.8363	4.6273	4.722	4.0939
12/8/2003	0:00:00	1.6755	1.6554	1.5601	1.6354	1.5953	1.6255
12/8/2003	12:00:00	7.2364	9.649	10.4702	9.9727	10.196	9.0282
08/13/03	0:00:00	5.4595	5.285	5.2053	5.27	5.2053	5.2151
08/13/03	12:00:00	6.6217	7.0814	8.2386	7.9275	8.0932	7.3764
08/14/03	0:00:00	6.3024	6.2523	6.1278	6.2275	6.0977	6.2425
08/14/03	12:00:00	13.6613	15.6472	17.4638	16.6147	16.6583	17.0542
08/15/03	0:00:00	11.4696	11.2292	10.7192	10.9793	10.5208	10.7192
08/15/03	12:00:00	19.4637	23.0776	23.2885	21.6475	23.6463	25.0838
08/16/03	0:00:00	14.5432	14.3168	13.9754	14.1483	13.834	14.0015
08/16/03	12:00:00	18.0134	21.3669	24.9776	22.545	22.7839	24.3503
08/17/03	0:00:00	8.4647	8.3843	8.5602	8.5049	8.5602	8.4245
08/17/03	12:00:00	8.0126	8.334	9.0886	8.6857	9.1088	8.8167
08/18/03	0:00:00	4.4326	4.4875	4.3082	4.3679	4.2883	4.3281
08/18/03	12:00:00	8.8922	9.6692	10.6174	10.3939	10.9586	10.8467
08/19/03	0:00:00	3.7946	3.5554	3.2208	3.3808	2.9064	3.0913
08/19/03	12:00:00	7.1414	7.8021	9.8562	9.0886	9.9727	9.7299
08/20/03	0:00:00	2.4266	2.3466	2.5216	2.5216	2.5767	2.4368
08/20/03	12:00:00	7.6921	8.1432	8.6103	8.4647	8.9678	9.0081
08/21/03	0:00:00	6.0679	5.998	5.8434	5.9333	5.7486	5.8035
08/21/03	12:00:00	8.0429	8.3639	8.5701	8.4094	8.6455	9.1339
08/22/03	0:00:00	6.7068	6.6217	6.2425	6.4119	6.0477	6.1278
08/22/03	12:00:00	15.4231	15.1571	16.9021	16.28	16.2264	16.642
08/23/03	0:00:00	6.0078	5.963	5.963	5.963	5.9829	5.963
08/23/03	12:00:00	6.3321	6.8816	8.3238	8.0629	9.6994	8.5902
08/24/03	0:00:00	7.5066	7.3666	7.2066	7.2866	7.1263	7.1814
08/24/03	12:00:00	13.4787	16.9402	17.2507	16.1887	19.1767	19.6615

08/25/03	0:00:00	4.7765	4.6671	4.6818	4.6818	4.722	4.642
08/25/03	12:00:00	5.5343	5.614	6.2075	6.0477	6.3472	6.482
08/26/03	0:00:00	6.2075	6.0977	5.7287	5.9032	5.6437	5.664
08/26/03	12:00:00	11.9621	12.586	13.0001	12.8343	12.8757	13.307
08/27/03	0:00:00	8.3992	8.2688	8.2234	8.2488	8.1833	8.1632
08/27/03	12:00:00	9.1643	9.6895	10.5208	10.4295	10.6378	10.7802
08/28/03	0:00:00	5.0757	5.0558	5.0907	5.1106	5.1106	5.0456
08/28/03	12:00:00	7.0814	7.6668	8.3439	8.334	9.2902	8.9476
08/29/03	0:00:00	5.9032	5.8035	5.8832	5.8832	5.9333	5.8234
08/29/03	12:00:00	10.7802	13.6613	15.7541	13.4319	14.86	16.8804
08/30/03	0:00:00	3.4305	3.4556	3.5155	3.5753	3.5452	3.4805
08/30/03	12:00:00	12.4828	14.6276	14.6435	13.7607	14.8388	16.9185
08/31/03	0:00:00	11.5824	11.5569	11.0913	11.311	10.8467	11.0097
08/31/03	12:00:00	16.1777	17.3215	17.3928	16.7989	17.5952	18.8349
1/9/2003	0:00:00	3.9394	3.8495	4.1537	4.0191	4.1785	3.989
1/9/2003	12:00:00	4.931	5.2948	6.5618	6.0879	6.9016	6.482
2/9/2003	0:00:00	3.675	3.6201	3.6998	3.7299	3.8145	3.6551
2/9/2003	12:00:00	14.2272	17.4638	16.8099	15.4978	17.1577	20.2819
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2.4767	3.141	1	3.3157	2.7715	-1.26	2.7715	-0.7914	-5.6266
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6.5418	7.2364	1	7.9476	5.9231	2.1764	5.7636	4.8513	-5.5355
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9.3911	10.0388	1	10.196	9.0282	4.9509	8.9123	7.9275	-5.4502
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4.3281	4.5473	1	4.3679	4.1537	2.5767	4.2085	4.7566	-5.0407
-1.2754	-1.3724	1	-1.2754	-1.357	-0.7508	-1.3724	-0.9491	-5.0087
1.5101	2.1013	1	1.7156	1.6354	0.4689	1.756	0.4487	-4.94
-4.4227	-4.5701	1	-4.3647	-4.4382	-2.7747	-4.4647	-3.2774	-4.9084
-0.6899	-0.4514	1	-0.5072	-0.6899	-0.9138	-0.6696	-1.3366	-4.8869
-4.0286	-4.0444	1	-3.9291	-4.0183	-2.8574	-4.0444	-3.3503	-4.8234
3.5753	3.6998	1	3.7799	3.3507	1.1735	3.3307	1.8108	-4.76
-2.7747	-2.8781	1	-2.6867	-2.8317	-1.956	-2.8574	-2.4237	-4.7018
4.8216	5.1305	1	4.722	5.3249	2.3168	5.5892	4.0939	-4.6544
1.0931	0.252	1	0.5092	1.0632	0.7915	1.3545	3.301	-4.6015
11.1221	11.5005	1	11.7158	10.9028	6.9415	10.8467	9.8562	-4.5331
8.7863	7.6468	1	7.9026	8.1632	6.6217	8.2234	10.9435	-4.4858
15.7327	14.8812	1	15.1571	15.1571	10.3939	15.2581	16.0974	-4.4227
1.2742	1.0127	1	1.1735	1.1333	1.796	1.1333	2.2017	-4.4068
7.7722	7.6819	1	7.742	7.5618	4.8712	7.6668	7.5618	-4.354
0.711	0.711	1	0.7512	0.6301	1.1534	0.6301	1.0328	-4.291
5.2151	5.1305	1	5.0558	5.2501	3.2709	5.3745	4.9708	-4.2648
-1.357	-1.8326	1	-1.6125	-1.2192	-0.355	-1.0512	0.1864	-4.2122
7.5467	8.1432	1	9.0886	7.1814	4.3679	7.0614	6.0078	-4.165
2.7915	2.2017	1	2.3466	2.7715	2.5767	2.9814	4.4127	-4.165
15.2685	14.9606	1	15.9897	14.4852	9.8562	14.4748	14.6539	-4.097
10.5411	9.8562	1	10.0285	9.912	9.0886	9.8562	12.1732	-4.0863
13.2862	12.5654	1	14.4009	12.2093	8.8668	11.885	12.1064	-4.0183
2.6366	1.7809	1	2.1764	2.5967	3.4105	2.6166	5.1704	-3.9397
12.3073	11.9621	1	12.1732	11.4082	8.0429	11.3723	11.7773	-3.9291
8.6558	7.5618	1	7.742	8.5902	7.2364	8.9879	10.6835	-3.9188
14.1222	14.0802	1	15.4123	12.9848	10.0082	12.7671	13.234	-3.8612
4.9708	4.2285	1	4.4127	4.7765	4.9013	4.981	7.6267	-3.8143
14.3902	13.6613	1	14.6698	13.7449	10.1704	13.4319	13.5361	-3.7934
1.5401	1.5302	1	1.6354	1.5401	2.0715	1.4749	1.7156	-3.7359
6.4021	6.6217	1	6.442	6.2674	4.7566	6.3321	6.2824	-3.6835
1.9714	2.0213	1	2.0915	1.7707	2.8416	1.7356	2.9814	-3.6835
15.5457	15.6259	1	16.5339	14.9238	11.0913	14.7702	13.6196	-3.6261

10.6581	8.882	1	9.553	10.4295	9.9322	10.6735	15.4549	-3.5844
12.5755	12.643	1	13.9335	11.5159	9.8562	11.2497	11.2601	-3.5427
5.6937	5.4595	1	5.5241	5.5091	5.8035	5.5241	7.0414	-3.5011
13.0678	14.0015	1	14.6539	12.5755	10.6074	12.5085	11.8645	-3.4803
0.8166	0.8871	1	0.8871	0.7361	0.9828	0.7258	1.3796	-3.4594
7.2866	7.7072	1	7.7873	6.6017	6.2075	6.3671	7.9676	-3.4178
-0.3145	-0.3348	1	-0.4005	-0.4005	-0.274	-0.4005	0.1106	-3.4021
5.3099	6.1477	1	5.998	4.6521	3.8596	4.6818	4.7566	-3.3813
-2.4855	-2.7334	1	-2.6867	-2.5473	-2.2179	-2.5216	-1.1784	-3.3139
7.2564	8.1833	1	9.4467	6.1876	5.9431	5.9333	6.6469	-3.2669
-0.4005	-0.9138	1	-0.8118	-0.5275	-0.5275	-0.2385	2.6615	-3.2669
7.4515	8.4795	1	9.6338	6.482	6.1624	6.2523	6.8416	-3.1944
2.1013	1.0529	1	1.0783	2.0915	1.6153	2.3617	5.3948	-3.1944
15.4978	15.5244	1	17.1142	14.1222	13.1873	13.8759	14.8125	-3.1321
5.3948	4.8363	1	4.931	5.0757	5.1704	5.0309	7.5066	-3.1008
6.4921	6.5219	1	6.4021	6.3671	6.0679	6.4119	6.9566	-3.0489
2.8766	2.8216	1	2.7915	2.6517	2.8966	2.5868	3.7799	-3.0699
7.8021	8.1734	1	7.612	6.9415	6.4021	6.8017	8.3439	-3.023
1.2087	0.7512	1	0.8067	0.7915	1.0127	0.7361	3.6351	-3.023
8.6304	7.9877	1	8.9275	7.612	6.8616	7.2866	9.2499	-2.9402
0.7258	0.6605	1	0.6908	0.6301	0.7512	0.5951	1.1333	-2.9144
9.2046	8.5902	1	7.9877	8.2836	6.1876	8.3439	9.1491	-2.8988
4.0491	3.0913	1	3.176	4.2582	3.3157	4.7318	6.7068	-2.8574
8.3639	8.3238	1	8.8167	7.8825	7.1263	7.6668	7.5316	-2.8469
1.4749	1.4499	1	1.4348	1.4148	1.4598	1.4348	1.8308	-2.8161
12.7515	12.0443	1	11.9109	12.0754	10.1857	11.9264	12.3999	-2.7747
6.3024	4.6521	1	4.7318	5.7885	4.9509	5.998	10.816	-2.7642
18.8796	19.1936	1	20.6259	18.0575	16.9729	17.546	18.3785	-2.7334
6.0078	4.9163	1	4.981	5.9032	5.3448	6.3871	8.6857	-2.6972
15.1571	15.3271	1	15.4231	14.3061	13.7607	14.3168	15.3111	-2.6508
6.8115	6.0078	1	5.5892	6.8017	5.8832	7.8424	10.7192	-2.6092
9.6994	9.6692	1	8.882	9.2902	8.2688	9.1339	9.1088	-2.599
3.211	2.2817	1	2.3168	3.6201	2.5767	4.2484	5.7287	-2.599
10.5971	10.5971	1	11.311	10.5208	10.2312	10.3939	10.0285	-2.5321
8.0278	7.4417	1	7.5217	8.2688	7.5618	8.52	9.1088	-2.5321
17.9252	17.8534	1	18.6065	17.9252	17.546	17.8534	17.3545	-2.5061
14.5747	13.6613	1	13.8131	14.8971	13.8025	15.1571	16.291	-2.4855
19.6841	19.5259	1	20.1618	19.6615	19.278	19.5992	19.34	-2.4649
9.7703	9.0081	1	9.1088	9.9727	9.2145	10.2721	11.885	-2.4392
16.1189	16.0759	1	16.9021	16.1404	15.845	16.0759	15.6472	-2.4081
9.7703	9.1643	1	9.3005	9.9574	9.4315	10.1704	11.0609	-2.3669
17.5241	17.1742	1	18.1459	17.6171	16.9836	17.5241	17.1417	-2.3669
13.307	12.7257	1	12.8757	13.4319	12.9015	13.5778	14.3902	-2.3362
22.112	21.5831	1	22.6821	22.3016	21.4135	22.2186	21.7178	-2.3001
16.0759	14.712	1	15.0458	16.4797	15.4549	16.8316	18.5008	-2.2691
24.6288	25.1277	1	26.5012	24.94	24.2458	24.6845	23.9269	-2.2384
16.8533	15.7969	1	16.0974	17.2178	16.7123	17.4638	18.2565	-2.1919
22.8078	23.0177	1	23.0657	22.9036	22.4023	22.76	23.2707	-2.1768
19.4863	19.3005	1	19.3961	19.4637	19.3005	19.4412	20.1734	-2.1357
25.784	26.9159	1	27.7643	25.8094	25.6128	25.6888	25.4674	-2.1097
18.3451	18.2343	1	18.2343	18.2565	18.3066	18.2565	19.2555	-2.038
24.9277	26.2759	1	27.4202	24.9776	24.4122	24.7469	24.5111	-2.0121

8.1833	8.0932	1	8.0629	8.1432	8.0932	8.1432	8.9476	-1.956
16.7666	16.4472	1	16.2694	16.6147	15.2898	16.8697	17.6391	-1.9146
12.7878	12.1064	1	13.1666	13.078	13.0573	13.0365	13.6459	-1.8635
24.3875	24.9089	1	26.4623	24.5606	22.9276	24.3382	23.8776	-1.8122
17.7708	17.1306	1	17.9968	17.9252	17.7434	17.8974	18.6288	-1.7302
21.4135	21.7178	1	21.7413	21.1576	21.1926	21.2098	23.4518	-1.6638
13.078	12.8914	1	12.855	13.0158	12.8757	13.0365	14.9818	-1.5358
8.3843	8.3238	1	8.3439	8.3439	8.3439	8.3992	9.0533	-1.4644
6.2824	6.2523	1	6.2674	6.1624	6.1624	6.0977	6.4921	-1.4031
10.196	10.2721	1	10.4905	10.6074	10.4395	10.862	9.9475	-1.3724
6.7817	6.5719	1	6.5418	6.7068	6.4921	6.6367	7.7072	-1.3008
11.168	11.5005	1	11.3519	11.6133	11.1579	11.6338	12.643	-1.2754
7.0414	6.9216	1	6.9216	6.9566	6.9566	6.9216	8.2386	-1.2192
15.6791	14.7702	1	17.0271	15.1571	15.226	15.9254	18.523	-1.1938
10.4702	10.0537	1	10.1199	10.5208	10.1857	10.7549	10.6988	-1.1277
10.8824	10.6174	1	11.0813	10.8363	10.7802	10.9435	10.5411	-1.0969
9.831	9.4113	1	9.3104	9.6692	9.366	9.8562	10.3736	-1.0308
16.7123	17.3215	1	17.683	17.196	17.0435	17.5076	16.8099	-0.9901
10.0285	9.8917	1	9.8562	9.8562	9.8562	9.8463	10.4395	-0.9491
9.8562	9.6895	1	12.2917	10.8824	10.4702	11.434	10.069	-0.8831
8.0126	8.0429	1	7.9173	7.8224	7.8825	7.762	8.751	-0.8321
17.5679	18.2343	1	21.0474	19.6448	18.3894	19.8886	20.1734	-0.8018
9.0533	9.124	1	9.0081	8.9275	9.0282	8.9476	9.8562	-0.7508
8.4094	8.2836	1	8.6455	8.751	8.5049	8.751	8.8167	-0.7358
5.2302	5.4095	1	5.3745	5.1106	5.27	5.0907	5.998	-0.7052
7.5618	6.9415	1	7.2764	7.9476	7.5618	7.9026	7.5467	-0.6696
5.2151	5.1505	1	5.1505	5.1505	5.1704	5.1505	6.0078	-0.6493
6.5418	6.4921	1	6.6017	6.6469	6.5418	6.6217	6.6868	-0.6393
8.0429	7.9173	1	7.8021	7.9275	7.7072	7.7873	9.8463	-0.6393
11.7773	11.6953	1	12.1887	12.1887	11.6953	12.2093	11.6543	-0.6087
9.8108	9.3104	1	9.7703	9.6692	9.0886	9.7803	13.3329	-0.5631
16.2479	16.0544	1	17.7546	16.642	16.8099	17.1742	14.8125	-0.5275
9.0685	8.8064	1	8.9678	8.8266	8.751	8.8266	10.1704	-0.5072
23.2402	23.3673	1	24.7595	23.5611	24.2889	24.443	22.6403	-0.5478
15.1571	14.8232	1	15.1571	15.0242	14.7279	15.1094	16.6257	-0.5275
25.3286	26.527	1	27.1379	25.2408	26.3273	26.5787	25.228	-0.5884
15.0086	15.0242	1	14.8812	14.7702	14.9606	14.7913	19.4637	-0.5731
23.0776	23.5488	1	25.7141	23.9269	24.3503	25.1589	25.3789	-0.5478
15.1094	15.2473	1	14.9926	14.8971	15.0242	14.9079	17.7708	-0.5731
15.9524	15.5083	1	15.9096	16.5555	16.2102	16.5555	16.4472	-0.5478
10.5768	10.6074	1	10.5411	10.4395	10.5768	10.5108	12.586	-0.5731
20.1902	19.8997	1	21.4602	21.6591	20.7757	21.088	19.3961	-0.5631
17.3215	17.2889	1	17.2288	17.1742	17.1306	17.1417	17.6995	-0.5631
12.0238	11.8439	1	11.8133	12.1064	11.9109	12.1064	13.7449	-0.5731
11.4696	11.4901	1	11.6338	11.3368	11.5159	11.2292	11.3264	-0.5478
8.8266	8.5701	1	8.5701	8.9275	8.8064	8.7863	9.2701	-0.5478
6.0078	5.963	1	6.0078	5.9829	6.033	6.1078	6.8416	-0.5275
14.6539	13.1196	1	12.431	15.2581	13.4787	13.3903	11.5005	-0.5478
5.1903	5.2053	1	5.285	5.0907	4.9509	5.1403	5.2948	-0.4919
7.1165	6.6868	1	6.5418	6.9415	6.7215	6.4021	6.0879	-0.5072
5.3448	5.3647	1	5.4493	5.2501	5.3745	5.2948	5.8832	-0.4919
19.3961	18.7903	1	18.3229	18.3451	18.4786	16.9021	17.9968	-0.5072

7.9275	8.0028	1	8.0278	7.7722	7.9476	7.9173	9.0081	-0.4919
9.7803	8.751	1	8.3439	9.6086	8.8668	8.6304	7.5618	-0.4514
5.3249	5.2948	1	5.3745	5.27	5.3099	5.285	5.6839	-0.4311
13.5676	10.1857	1	9.9475	12.9172	11.3368	11.5723	10.5768	-0.4311
4.0491	4.1687	1	4.2582	4.1935	4.0691	4.4476	6.0078	-0.4311
14.6276	11.6953	1	11.168	13.7816	12.7878	13.6459	10.9793	-0.4108
6.6668	6.7618	1	6.8816	6.7068	6.7817	6.7618	7.4666	-0.4005
21.3787	15.9524	1	14.9395	18.7233	17.6391	18.8965	14.2062	-0.4005
7.4266	7.5818	1	7.7072	7.5066	7.5818	7.6267	8.6558	-0.4005
19.059	16.5771	1	16.4203	19.6841	17.8426	17.9252	19.1936	-0.4005
7.5467	7.3666	1	7.3764	7.8625	7.5618	7.9476	7.9026	-0.3348
17.1142	13.6822	1	13.3172	17.3108	14.6909	14.9818	13.1352	-0.3348
9.3507	9.4871	1	9.5275	9.1643	9.4315	9.1643	9.7906	-0.3145
4.0939	3.8894	1	3.5952	4.4326	3.7799	4.3382	4.8363	-0.274
1.796	1.8762	1	1.9313	1.7356	1.7809	1.8308	2.2217	-0.274
10.1199	9.3911	1	9.2046	10.1704	9.7501	9.2145	8.1231	-0.2942
6.3024	6.482	1	6.5418	6.2275	6.427	6.3871	7.4417	-0.2537
6.1624	5.3745	1	5.011	6.3024	5.3745	5.7486	5.7287	-0.2537
0.8469	0.8469	1	0.6908	0.9828	0.7361	1.0632	0.9725	-0.2385
2.9964	2.4266	1	2.1666	3.1113	2.6166	2.8966	2.2666	-0.2385
6.0078	6.462	1	6.462	5.7486	5.963	5.5493	6.6668	-0.2385
19.7354	18.2844	1	18.5008	22.047	20.9779	18.4342	17.2507	-0.2285
10.5564	10.3939	1	10.4295	10.7192	10.9028	10.6835	11.1221	-0.2285
14.2482	12.6687	1	12.3536	13.3329	13.4111	12.3536	11.1221	-0.2285
11.5159	11.4901	1	11.5978	11.4491	11.5005	11.4186	12.2917	-0.2285
5.0309	4.2732	1	4.1537	5.0757	4.5473	4.9013	4.1785	-0.193
1.7008	1.5752	1	1.6153	1.9162	1.5401	2.0715	1.9162	-0.2133
10.8467	7.742	1	8.0028	11.8645	9.8562	9.649	7.4066	-0.2133
5.27	5.1903	1	5.2302	5.3099	5.285	5.3745	5.8234	-0.1728
8.4795	6.9216	1	7.3466	8.5701	7.742	8.0429	7.0614	-0.1575
6.2275	6.1477	1	6.2674	6.1477	6.1725	6.1278	6.482	-0.1728
17.5241	14.8125	1	16.0383	17.1742	16.6257	15.226	13.5987	-0.1728
10.6988	11.0813	1	10.9586	10.6378	10.5971	10.6074	12.0443	-0.1728
24.2458	19.5373	1	21.7528	23.622	24.2704	20.5396	18.2013	-0.193
13.8025	14.1852	1	14.1222	13.6459	13.7189	13.4111	14.7913	-0.1575
25.5116	18.4505	1	21.3787	25.4041	24.9776	20.7353	18.4342	-0.1575
8.6304	8.3843	1	8.3992	8.8167	8.6706	8.9275	8.9123	-0.1575
9.2347	8.4795	1	8.3992	9.2701	9.0282	9.0282	8.0932	-0.1472
4.4127	4.4127	1	4.4326	4.4326	4.3879	4.6073	4.5874	-0.1171
10.7652	9.8463	1	10.0537	10.3939	10.1501	9.7803	8.9275	-0.1323
3.2359	3.4455	1	3.3706	3.4305	3.3906	3.69	4.4029	-0.1171
10.0537	8.1432	1	8.4446	10.1096	9.4722	9.1643	7.0015	-0.0968
2.6517	2.3368	1	2.3617	2.8216	2.6615	3.0164	2.6366	-0.1171
8.6103	8.0629	1	8.4094	8.3037	8.5401	8.108	7.5618	-0.1171
5.8035	5.9231	1	5.9231	5.8035	5.8532	5.7287	6.3871	-0.0766
8.6455	8.3037	1	8.6103	8.2034	8.4897	7.8625	7.9476	-0.0968
6.2425	6.462	1	6.3472	6.2674	6.2674	6.1876	6.9664	-0.0968
16.5555	15.1891	1	15.5083	16.5339	16.1619	15.4231	16.0383	-0.0968
6.0078	5.8682	1	5.9231	6.1725	6.1278	6.1624	6.6217	-0.0766
8.882	6.9664	1	7.4666	8.726	8.1231	7.9476	7.0614	-0.0766
7.1964	7.3666	1	7.2213	7.1263	7.2564	7.1263	7.6018	-0.0663
19.9568	14.4168	1	16.642	17.8754	17.9968	14.3537	13.9177	-0.0663

4.7566	4.5724	1	4.6073	4.9013	4.7318	4.9509	4.9708	-0.0514
6.1624	5.7636	1	6.0477	5.9829	6.0977	5.8682	5.4095	-0.0312
5.7486	5.9231	1	5.7885	5.7734	5.7486	5.7636	6.462	-0.0106
13.0678	12.4723	1	13.0158	12.643	12.7257	12.3073	12.0086	-0.0106
8.2234	8.1734	1	8.1734	8.2688	8.3037	8.2836	8.9123	-0.0106
10.8363	10.069	1	10.2515	10.4905	10.4395	9.9475	9.0081	0.0145
5.1403	5.011	1	5.011	5.2151	5.1505	5.2151	5.3745	0.0043
8.8922	7.8021	1	8.3037	8.6558	8.4446	8.0278	6.9016	0.0298
5.9431	5.7636	1	5.7636	6.0078	5.9829	6.0078	6.3671	0.0298
17.3545	10.9586	1	14.3902	14.6065	16.2102	13.0678	11.3264	0.0649
3.5753	3.4556	1	3.4556	3.6551	3.6103	3.7299	3.69	0.0447
15.5937	12.9848	1	15.4123	13.1873	15.354	12.9848	11.8234	0.0649
11.0609	11.3723	1	11.2088	10.9435	10.9586	10.8824	11.8439	0.0649
17.546	16.3987	1	17.9747	16.6147	17.6171	16.0221	15.0774	0.0851
4.1935	3.8495	1	3.9093	4.4326	4.348	4.4127	4.4676	0.1106
6.7618	5.6937	1	5.9431	6.8416	6.5817	6.462	5.0456	0.146
3.8145	3.5952	1	3.6103	3.8596	3.8495	3.8495	4.0289	0.1662
18.5675	14.2482	1	18.7233	14.7543	18.4342	15.0242	12.7515	0.1864
8.6304	8.882	1	8.7662	8.6558	8.882	8.751	9.5073	0.2066
10.2162	9.6895	1	10.0082	9.9727	9.8562	9.6338	9.8562	0.1864





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DATALOGGER #: 2  
 DESCRIPTION : 206071  
 File Type : 836 2211000 323  
 SAMPLE RATE : 12:00:00  
 PRECISION : -DOUBLE-  
 LAST RECORDING: 03/09/03  
 DATE TIME  
 MM/DD/YY HH:MM:SS

Petro Canada NUNA Drilling Sump  
 Date Installed: April 24, 2003  
 Located within drill sump

EBA Temperature Bead Calibration (C)			0.04	0.02	0.03	0.02
			Surface			
Depth of Thermistor (m)			Temperature	2.5	4.5	7
04/24/03	12:00:00	4/24/03 12:00	0.04	-6.84	-5.64	<b>Dead Bead?</b>
04/25/03	0:00:00	4/25/03 0:00	-3.29	-7.93	-5.57	
04/25/03	12:00:00	4/25/03 12:00	1.21	-8.18	-5.59	
04/26/03	0:00:00	4/26/03 0:00	-0.39	-8.27	-5.62	
04/26/03	12:00:00	4/26/03 12:00	7.33	-8.36	-5.69	
04/27/03	0:00:00	4/27/03 0:00	-1.56	-8.38	-5.74	
04/27/03	12:00:00	4/27/03 12:00	5.13	-8.36	-5.76	
04/28/03	0:00:00	4/28/03 0:00	-0.43	-8.36	-5.84	
04/28/03	12:00:00	4/28/03 12:00	7.84	-8.33	-5.86	
04/29/03	0:00:00	4/29/03 0:00	-0.51	-8.29	-5.92	
04/29/03	12:00:00	4/29/03 12:00	0.55	-8.22	-5.92	
04/30/03	0:00:00	4/30/03 0:00	-1.48	-8.16	-5.95	
04/30/03	12:00:00	4/30/03 12:00	2.86	-8.11	-6.04	
05/01/03	0:00:00	5/1/03 0:00	-2.81	-8.01	-6.08	
05/01/03	12:00:00	5/1/03 12:00	-1.15	-7.92	-6.12	
05/02/03	0:00:00	5/2/03 0:00	-4.76	-7.81	-6.14	
05/02/03	12:00:00	5/2/03 12:00	-1.01	-7.73	-6.20	
05/03/03	0:00:00	5/3/03 0:00	-4.57	-7.63	-6.20	
05/03/03	12:00:00	5/3/03 12:00	-3.46	-7.54	-6.22	
05/04/03	0:00:00	5/4/03 0:00	-5.98	-7.44	-6.25	
05/04/03	12:00:00	5/4/03 12:00	-2.87	-7.37	-6.28	
05/05/03	0:00:00	5/5/03 0:00	-6.30	-7.26	-6.28	
05/05/03	12:00:00	5/5/03 12:00	4.86	-7.15	-6.28	
05/06/03	0:00:00	5/6/03 0:00	-2.99	-7.05	-6.31	
05/06/03	12:00:00	5/6/03 12:00	-1.46	-6.98	-6.33	
05/07/03	0:00:00	5/7/03 0:00	-7.38	-6.86	-6.33	
05/07/03	12:00:00	5/7/03 12:00	-2.84	-6.80	-6.35	
05/08/03	0:00:00	5/8/03 0:00	-5.15	-6.69	-6.35	
05/08/03	12:00:00	5/8/03 12:00	-0.36	-6.65	-6.38	
05/09/03	0:00:00	5/9/03 0:00	-1.17	-6.56	-6.38	
05/09/03	12:00:00	5/9/03 12:00	12.29	-6.48	-6.40	
05/10/03	0:00:00	5/10/03 0:00	-3.40	-6.41	-6.40	
05/10/03	12:00:00	5/10/03 12:00	-3.64	-6.38	-6.40	
05/11/03	0:00:00	5/11/03 0:00	-3.18	-6.38	-6.42	
05/11/03	12:00:00	5/11/03 12:00	1.07	-6.28	-6.46	
05/12/03	0:00:00	5/12/03 0:00	-4.83	-6.13	-6.42	
05/12/03	12:00:00	5/12/03 12:00	-1.24	-6.09	-6.46	
05/13/03	0:00:00	5/13/03 0:00	-3.94	-6.04	-6.46	
05/13/03	12:00:00	5/13/03 12:00	-1.41	-5.96	-6.47	
05/14/03	0:00:00	5/14/03 0:00	-3.89	-5.86	-6.46	

05/14/03	12:00:00	5/14/03 12:00	-4.24	-5.81	-6.47
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05/17/03	12:00:00	5/17/03 12:00	4.89	-5.52	-6.51
05/18/03	0:00:00	5/18/03 0:00	0.04	-5.44	-6.53
05/18/03	12:00:00	5/18/03 12:00	7.97	-5.43	-6.54
05/19/03	0:00:00	5/19/03 0:00	4.11	-5.38	-6.55
05/19/03	12:00:00	5/19/03 12:00	9.50	-5.33	-6.55
05/20/03	0:00:00	5/20/03 0:00	0.91	-5.27	-6.57
05/20/03	12:00:00	5/20/03 12:00	10.48	-5.23	-6.57
05/21/03	0:00:00	5/21/03 0:00	1.58	-5.17	-6.59
05/21/03	12:00:00	5/21/03 12:00	5.98	-5.14	-6.59
05/22/03	0:00:00	5/22/03 0:00	-0.08	-5.06	-6.59
05/22/03	12:00:00	5/22/03 12:00	4.80	-5.02	-6.61
05/23/03	0:00:00	5/23/03 0:00	-0.91	-4.99	-6.61
05/23/03	12:00:00	5/23/03 12:00	0.49	-4.92	-6.62
05/24/03	0:00:00	5/24/03 0:00	-3.24	-4.89	-6.61
05/24/03	12:00:00	5/24/03 12:00	-1.30	-4.87	-6.62
05/25/03	0:00:00	5/25/03 0:00	-3.31	-4.80	-6.62
05/25/03	12:00:00	5/25/03 12:00	1.85	-4.74	-6.64
05/26/03	0:00:00	5/26/03 0:00	-2.38	-4.68	-6.64
05/26/03	12:00:00	5/26/03 12:00	4.13	-4.63	-6.66
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05/27/03	12:00:00	5/27/03 12:00	9.90	-4.51	-6.61
05/28/03	0:00:00	5/28/03 0:00	10.98	-4.47	-6.62
05/28/03	12:00:00	5/28/03 12:00	16.14	-4.40	-6.61
05/29/03	0:00:00	5/29/03 0:00	2.24	-4.39	-6.62
05/29/03	12:00:00	5/29/03 12:00	7.60	-4.33	-6.61
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05/30/03	12:00:00	5/30/03 12:00	5.01	-4.24	-6.64
05/31/03	0:00:00	5/31/03 0:00	0.23	-4.19	-6.62
05/31/03	12:00:00	5/31/03 12:00	6.05	-4.15	-6.62
06/01/03	0:00:00	6/1/03 0:00	4.45	-4.15	-6.66
06/01/03	12:00:00	6/1/03 12:00	14.69	-4.08	-6.64
06/02/03	0:00:00	6/2/03 0:00	12.21	-4.07	-6.68
06/02/03	12:00:00	6/2/03 12:00	12.15	-4.00	-6.68
06/03/03	0:00:00	6/3/03 0:00	5.21	-3.92	-6.66
06/03/03	12:00:00	6/3/03 12:00	11.82	-3.91	-6.68
06/04/03	0:00:00	6/4/03 0:00	10.72	-3.90	-6.70
06/04/03	12:00:00	6/4/03 12:00	13.27	-3.84	-6.70
06/05/03	0:00:00	6/5/03 0:00	7.67	-3.79	-6.68
06/05/03	12:00:00	6/5/03 12:00	13.58	-3.77	-6.72
06/06/03	0:00:00	6/6/03 0:00	1.76	-3.72	-6.72
06/06/03	12:00:00	6/6/03 12:00	6.32	-3.66	-6.68
06/07/03	0:00:00	6/7/03 0:00	3.02	-3.66	-6.73
06/07/03	12:00:00	6/7/03 12:00	13.66	-3.61	-6.74
06/08/03	0:00:00	6/8/03 0:00	15.49	-3.56	-6.72
06/08/03	12:00:00	6/8/03 12:00	11.30	-3.52	-6.74
06/09/03	0:00:00	6/9/03 0:00	7.08	-3.48	-6.73



06/09/03	12:00:00	6/9/03 12:00	11.90	-3.46	-6.74
06/10/03	0:00:00	6/10/03 0:00	1.42	-3.44	-6.77
06/10/03	12:00:00	6/10/03 12:00	8.01	-3.40	-6.74
06/11/03	0:00:00	6/11/03 0:00	0.15	-3.38	-6.77
06/11/03	12:00:00	6/11/03 12:00	4.80	-3.36	-6.79
06/12/03	0:00:00	6/12/03 0:00	-1.14	-3.29	-6.77
06/12/03	12:00:00	6/12/03 12:00	6.69	-3.25	-6.74
06/13/03	0:00:00	6/13/03 0:00	2.70	-3.25	-6.79
06/13/03	12:00:00	6/13/03 12:00	6.88	-3.17	-6.77
06/14/03	0:00:00	6/14/03 0:00	5.43	-3.17	-6.80
06/14/03	12:00:00	6/14/03 12:00	14.85	-3.11	-6.79
06/15/03	0:00:00	6/15/03 0:00	7.55	-3.08	-6.77
06/15/03	12:00:00	6/15/03 12:00	7.00	-3.03	-6.77
06/16/03	0:00:00	6/16/03 0:00	3.82	-3.05	-6.81
06/16/03	12:00:00	6/16/03 12:00	8.38	-3.00	-6.79
06/17/03	0:00:00	6/17/03 0:00	3.68	-3.00	-6.81
06/17/03	12:00:00	6/17/03 12:00	9.29	-2.92	-6.79
06/18/03	0:00:00	6/18/03 0:00	1.17	-2.89	-6.80
06/18/03	12:00:00	6/18/03 12:00	9.19	-2.88	-6.80
06/19/03	0:00:00	6/19/03 0:00	6.75	-2.84	-6.79
06/19/03	12:00:00	6/19/03 12:00	7.57	-2.83	-6.80
06/20/03	0:00:00	6/20/03 0:00	1.87	-2.80	-6.81
06/20/03	12:00:00	6/20/03 12:00	12.44	-2.75	-6.81
06/21/03	0:00:00	6/21/03 0:00	10.86	-2.74	-6.81
06/21/03	12:00:00	6/21/03 12:00	18.42	-2.71	-6.83
06/22/03	0:00:00	6/22/03 0:00	8.73	-2.68	-6.81
06/22/03	12:00:00	6/22/03 12:00	15.35	-2.63	-6.81
06/23/03	0:00:00	6/23/03 0:00	10.76	-2.59	-6.81
06/23/03	12:00:00	6/23/03 12:00	9.15	-2.58	-6.81
06/24/03	0:00:00	6/24/03 0:00	5.77	-2.58	-6.85
06/24/03	12:00:00	6/24/03 12:00	10.07	-2.51	-6.81
06/25/03	0:00:00	6/25/03 0:00	9.15	-2.51	-6.81
06/25/03	12:00:00	6/25/03 12:00	17.39	-2.49	-6.81
06/26/03	0:00:00	6/26/03 0:00	16.33	-2.47	-6.81
06/26/03	12:00:00	6/26/03 12:00	19.38	-2.44	-6.83
06/27/03	0:00:00	6/27/03 0:00	11.93	-2.42	-6.81
06/27/03	12:00:00	6/27/03 12:00	15.69	-2.39	-6.81
06/28/03	0:00:00	6/28/03 0:00	11.10	-2.35	-6.81
06/28/03	12:00:00	6/28/03 12:00	17.18	-2.35	-6.83
06/29/03	0:00:00	6/29/03 0:00	14.43	-2.32	-6.83
06/29/03	12:00:00	6/29/03 12:00	21.76	-2.28	-6.83
06/30/03	0:00:00	6/30/03 0:00	18.54	-2.25	-6.83
06/30/03	12:00:00	6/30/03 12:00	23.97	-2.22	-6.83
07/01/03	0:00:00	7/1/03 0:00	18.30	-2.17	-6.81
07/01/03	12:00:00	7/1/03 12:00	23.31	-2.16	-6.85
07/02/03	0:00:00	7/2/03 0:00	20.21	-2.12	-6.83
07/02/03	12:00:00	7/2/03 12:00	25.51	-2.09	-6.83
07/03/03	0:00:00	7/3/03 0:00	19.30	-2.02	-6.81
07/03/03	12:00:00	7/3/03 12:00	24.55	-1.99	-6.83
07/04/03	0:00:00	7/4/03 0:00	8.99	-1.94	-6.80
07/04/03	12:00:00	7/4/03 12:00	17.68	-1.89	-6.80
07/05/03	0:00:00	7/5/03 0:00	13.69	-1.84	-6.81

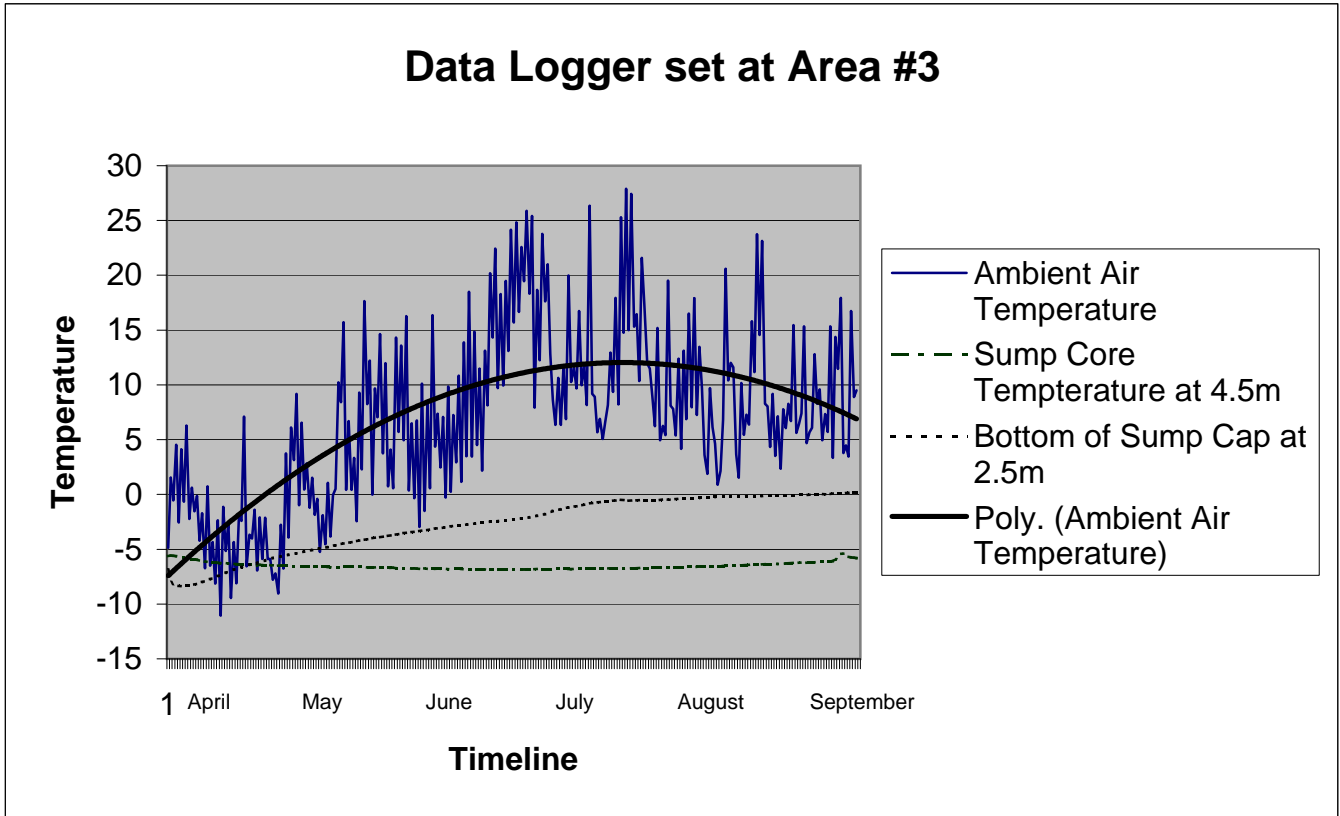
07/05/03	12:00:00	7/5/03 12:00	23.92	-1.79	-6.81
07/06/03	0:00:00	7/6/03 0:00	18.67	-1.71	-6.81
07/06/03	12:00:00	7/6/03 12:00	23.49	-1.64	-6.81
07/07/03	0:00:00	7/7/03 0:00	15.02	-1.52	-6.80
07/07/03	12:00:00	7/7/03 12:00	9.09	-1.44	-6.80
07/08/03	0:00:00	7/8/03 0:00	6.53	-1.38	-6.80
07/08/03	12:00:00	7/8/03 12:00	9.99	-1.35	-6.80
07/09/03	0:00:00	7/9/03 0:00	7.75	-1.28	-6.80
07/09/03	12:00:00	7/9/03 12:00	12.68	-1.26	-6.80
07/10/03	0:00:00	7/10/03 0:00	8.28	-1.20	-6.80
07/10/03	12:00:00	7/10/03 12:00	18.56	-1.17	-6.81
07/11/03	0:00:00	7/11/03 0:00	10.74	-1.11	-6.80
07/11/03	12:00:00	7/11/03 12:00	10.58	-1.08	-6.80
07/12/03	0:00:00	7/12/03 0:00	10.41	-1.01	-6.80
07/12/03	12:00:00	7/12/03 12:00	16.85	-0.97	-6.80
07/13/03	0:00:00	7/13/03 0:00	10.48	-0.93	-6.79
07/13/03	12:00:00	7/13/03 12:00	10.11	-0.86	-6.79
07/14/03	0:00:00	7/14/03 0:00	8.79	-0.81	-6.79
07/14/03	12:00:00	7/14/03 12:00	20.21	-0.78	-6.80
07/15/03	0:00:00	7/15/03 0:00	9.90	-0.73	-6.79
07/15/03	12:00:00	7/15/03 12:00	8.86	-0.72	-6.79
07/16/03	0:00:00	7/16/03 0:00	6.04	-0.69	-6.77
07/16/03	12:00:00	7/16/03 12:00	7.59	-0.65	-6.77
07/17/03	0:00:00	7/17/03 0:00	6.05	-0.63	-6.77
07/17/03	12:00:00	7/17/03 12:00	6.73	-0.62	-6.74
07/18/03	0:00:00	7/18/03 0:00	9.89	-0.62	-6.77
07/18/03	12:00:00	7/18/03 12:00	11.69	-0.59	-6.77
07/19/03	0:00:00	7/19/03 0:00	13.37	-0.54	-6.77
07/19/03	12:00:00	7/19/03 12:00	14.85	-0.51	-6.77
07/20/03	0:00:00	7/20/03 0:00	10.21	-0.49	-6.77
07/20/03	12:00:00	7/20/03 12:00	22.68	-0.53	-6.77
07/21/03	0:00:00	7/21/03 0:00	16.67	-0.51	-6.74
07/21/03	12:00:00	7/21/03 12:00	25.27	-0.57	-6.79
07/22/03	0:00:00	7/22/03 0:00	19.50	-0.55	-6.77
07/22/03	12:00:00	7/22/03 12:00	25.42	-0.53	-6.73
07/23/03	0:00:00	7/23/03 0:00	17.81	-0.55	-6.74
07/23/03	12:00:00	7/23/03 12:00	16.49	-0.53	-6.72
07/24/03	0:00:00	7/24/03 0:00	12.63	-0.55	-6.74
07/24/03	12:00:00	7/24/03 12:00	19.44	-0.54	-6.73
07/25/03	0:00:00	7/25/03 0:00	17.74	-0.54	-6.73
07/25/03	12:00:00	7/25/03 12:00	13.78	-0.55	-6.73
07/26/03	0:00:00	7/26/03 0:00	11.37	-0.53	-6.72
07/26/03	12:00:00	7/26/03 12:00	9.31	-0.53	-6.70
07/27/03	0:00:00	7/27/03 0:00	6.88	-0.51	-6.70
07/27/03	12:00:00	7/27/03 12:00	11.54	-0.53	-6.72
07/28/03	0:00:00	7/28/03 0:00	5.33	-0.47	-6.68
07/28/03	12:00:00	7/28/03 12:00	6.13	-0.49	-6.68
07/29/03	0:00:00	7/29/03 0:00	5.92	-0.47	-6.68
07/29/03	12:00:00	7/29/03 12:00	18.04	-0.49	-6.68
07/30/03	0:00:00	7/30/03 0:00	9.05	-0.47	-6.66
07/30/03	12:00:00	7/30/03 12:00	7.60	-0.43	-6.64
07/31/03	0:00:00	7/31/03 0:00	5.72	-0.41	-6.64

07/31/03	12:00:00	7/31/03 12:00	10.62	-0.41	-6.64
08/01/03	0:00:00	8/1/03 0:00	6.05	-0.41	-6.64
08/01/03	12:00:00	8/1/03 12:00	11.02	-0.39	-6.64
08/02/03	0:00:00	8/2/03 0:00	7.51	-0.38	-6.61
08/02/03	12:00:00	8/2/03 12:00	14.25	-0.38	-6.61
08/03/03	0:00:00	8/3/03 0:00	8.70	-0.38	-6.61
08/03/03	12:00:00	8/3/03 12:00	19.23	-0.38	-6.61
08/04/03	0:00:00	8/4/03 0:00	7.94	-0.31	-6.57
08/04/03	12:00:00	8/4/03 12:00	13.18	-0.31	-6.59
08/05/03	0:00:00	8/5/03 0:00	9.83	-0.29	-6.59
08/05/03	12:00:00	8/5/03 12:00	4.88	-0.25	-6.55
08/06/03	0:00:00	8/6/03 0:00	2.26	-0.25	-6.57
08/06/03	12:00:00	8/6/03 12:00	8.16	-0.27	-6.55
08/07/03	0:00:00	8/7/03 0:00	7.48	-0.23	-6.54
08/07/03	12:00:00	8/7/03 12:00	5.77	-0.23	-6.54
08/08/03	0:00:00	8/8/03 0:00	1.01	-0.22	-6.54
08/08/03	12:00:00	8/8/03 12:00	2.31	-0.22	-6.53
08/09/03	0:00:00	8/9/03 0:00	6.71	-0.22	-6.51
08/09/03	12:00:00	8/9/03 12:00	17.29	-0.21	-6.51
08/10/03	0:00:00	8/10/03 0:00	11.16	-0.21	-6.51
08/10/03	12:00:00	8/10/03 12:00	11.16	-0.21	-6.48
08/11/03	0:00:00	8/11/03 0:00	12.33	-0.21	-6.48
08/11/03	12:00:00	8/11/03 12:00	4.22	-0.17	-6.47
08/12/03	0:00:00	8/12/03 0:00	1.96	-0.19	-6.47
08/12/03	12:00:00	8/12/03 12:00	7.45	-0.19	-6.46
08/13/03	0:00:00	8/13/03 0:00	5.86	-0.15	-6.44
08/13/03	12:00:00	8/13/03 12:00	7.10	-0.14	-6.42
08/14/03	0:00:00	8/14/03 0:00	6.52	-0.15	-6.40
08/14/03	12:00:00	8/14/03 12:00	13.64	-0.15	-6.40
08/15/03	0:00:00	8/15/03 0:00	12.08	-0.15	-6.42
08/15/03	12:00:00	8/15/03 12:00	18.24	-0.17	-6.40
08/16/03	0:00:00	8/16/03 0:00	14.83	-0.14	-6.38
08/16/03	12:00:00	8/16/03 12:00	18.47	-0.14	-6.37
08/17/03	0:00:00	8/17/03 0:00	8.95	-0.14	-6.37
08/17/03	12:00:00	8/17/03 12:00	8.13	-0.13	-6.35
08/18/03	0:00:00	8/18/03 0:00	4.63	-0.10	-6.35
08/18/03	12:00:00	8/18/03 12:00	8.97	-0.11	-6.31
08/19/03	0:00:00	8/19/03 0:00	4.44	-0.10	-6.35
08/19/03	12:00:00	8/19/03 12:00	7.04	-0.08	-6.29
08/20/03	0:00:00	8/20/03 0:00	2.68	-0.10	-6.33
08/20/03	12:00:00	8/20/03 12:00	7.60	-0.10	-6.29
08/21/03	0:00:00	8/21/03 0:00	6.43	-0.06	-6.27
08/21/03	12:00:00	8/21/03 12:00	7.99	-0.08	-6.27
08/22/03	0:00:00	8/22/03 0:00	7.01	-0.08	-6.25
08/22/03	12:00:00	8/22/03 12:00	16.08	-0.08	-6.28
08/23/03	0:00:00	8/23/03 0:00	6.66	-0.06	-6.25
08/23/03	12:00:00	8/23/03 12:00	7.10	-0.06	-6.22
08/24/03	0:00:00	8/24/03 0:00	7.64	-0.05	-6.21
08/24/03	12:00:00	8/24/03 12:00	13.96	-0.05	-6.25
08/25/03	0:00:00	8/25/03 0:00	5.01	-0.03	-6.22
08/25/03	12:00:00	8/25/03 12:00	5.45	-0.01	-6.22
08/26/03	0:00:00	8/26/03 0:00	6.50	0.01	-6.18

08/26/03	12:00:00	8/26/03 12:00	12.05	0.01	-6.18
08/27/03	0:00:00	8/27/03 0:00	8.95	0.01	-6.16
08/27/03	12:00:00	8/27/03 12:00	9.05	0.03	-6.14
08/28/03	0:00:00	8/28/03 0:00	5.41	0.02	-6.18
08/28/03	12:00:00	8/28/03 12:00	6.94	0.05	-6.11
08/29/03	0:00:00	8/29/03 0:00	6.41	0.05	-6.11
08/29/03	12:00:00	8/29/03 12:00	11.37	0.08	-6.08
08/30/03	0:00:00	8/30/03 0:00	3.73	0.06	-5.91
08/30/03	12:00:00	8/30/03 12:00	11.86	0.08	-5.69
08/31/03	0:00:00	8/31/03 0:00	11.88	0.08	-5.43
08/31/03	12:00:00	8/31/03 12:00	15.12	0.11	-5.39
09/01/03	0:00:00	9/1/03 0:00	4.51	0.13	-5.55
09/01/03	12:00:00	9/1/03 12:00	5.09	0.17	-5.69
09/02/03	0:00:00	9/2/03 0:00	4.07	0.19	-5.74
09/02/03	12:00:00	9/2/03 12:00	12.79	0.21	-5.77
09/03/03	0:00:00	9/3/03 0:00	9.55	0.23	-5.80
09/03/03	12:00:00	9/3/03 12:00	9.90	0.21	-5.84

# Petro Canada I-30

## Sump Temperature Recordings





04/17/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/17/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/18/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/18/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/19/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/19/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/20/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/20/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/21/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/21/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/22/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/22/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/23/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/23/03	12:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/24/03	0:00:00	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
04/24/03	12:00:00	5.4892	2.8416	4.0289	3.4105	1.5401	3.5753	2.9964
04/25/03	0:00:00	-5.7173	-5.4607	-5.6048	-5.5464	-5.365	-5.5621	-5.4981
04/25/03	12:00:00	2.2968	0.7361	1.7356	0.897	-0.0514	0.9373	0.711
04/26/03	0:00:00	-0.7914	-0.5478	-0.7052	-0.6087	-0.4311	-0.629	-0.6087
04/26/03	12:00:00	3.3906	3.4105	3.6201	3.1561	3.8743	4.2085	5.963
04/27/03	0:00:00	-2.3875	-2.3568	-2.3207	-2.3362	-2.3207	-2.3669	-2.3362
04/27/03	12:00:00	1.2542	1.2087	1.6906	0.4487	1.6554	2.1764	4.4476
04/28/03	0:00:00	-1.0969	-0.7255	-0.9341	-0.7914	-0.5631	-0.8118	-0.7711
04/28/03	12:00:00	3.5753	4.1138	4.5074	3.4556	5.1704	5.9231	8.0429
04/29/03	0:00:00	-2.5061	-2.2384	-2.3669	-2.4081	-2.1919	-2.5216	-2.3207
04/29/03	12:00:00	0.6707	0.0649	0.867	0.5495	-0.274	0.4335	0.6707
04/30/03	0:00:00	-1.4999	-1.4386	-1.4795	-1.4795	-1.4236	-1.4999	-1.4999
04/30/03	12:00:00	0.2417	-0.274	0.3277	0.1106	-0.6493	-0.0514	0.0649
1/5/2003	0:00:00	-4.0863	-4.0654	-4.0444	-4.0444	-4.0444	-4.0863	-4.0444
1/5/2003	12:00:00	-1.7917	-2.3568	-1.7148	-2.1562	-3.023	-2.5321	-2.038
2/5/2003	0:00:00	-6.7579	-6.7469	-6.7251	-6.7469	-6.7469	-6.7743	-6.7251
2/5/2003	12:00:00	-2.0121	-3.1114	-2.038	-2.8317	-3.1114	-1.7148	-1.7047
3/5/2003	0:00:00	-6.8612	-6.8994	-6.9154	-6.7469	-6.7469	-6.796	-6.8395
3/5/2003	12:00:00	-4.2751	-5.3064	-4.333	-4.8657	-5.7173	-4.7178	-4.6544
4/5/2003	0:00:00	-8.5432	-8.5095	-8.5095	-8.5095	-8.5095	-8.5432	-8.5095
4/5/2003	12:00:00	-5.1416	-5.365	-4.8869	-6.0552	-5.2053	-4.333	-2.5321
5/5/2003	0:00:00	-11.4568	-11.1915	-11.4689	-11.2502	-11.0444	-11.3271	-11.1915
5/5/2003	12:00:00	-2.0946	-2.4237	-2.3001	-3.2931	-2.3001	-1.1938	0.1864
6/5/2003	0:00:00	-5.0407	-4.9084	-4.8657	-4.8553	-4.8394	-4.9664	-4.8657
6/5/2003	12:00:00	-2.6298	-3.3503	-2.3362	-2.8161	-4.0183	-3.023	-2.6972
7/5/2003	0:00:00	-9.326	-9.326	-9.2581	-9.2807	-9.2807	-9.326	-9.2807
7/5/2003	12:00:00	-6.5137	-6.4003	-5.4607	-6.5137	-6.4109	-5.8082	-4.5227
8/5/2003	0:00:00	-8.0421	-8.0032	-7.9811	-8.0032	-7.9811	-8.0254	-8.0032
8/5/2003	12:00:00	-2.3568	-2.6298	-2.2384	-2.5679	-2.5321	-0.8527	-0.2537
9/5/2003	0:00:00	-2.6867	-2.3669	-2.5061	-2.5216	-2.2179	-2.5473	-2.3568
9/5/2003	12:00:00	4.3082	4.4676	5.998	4.5074	6.6217	6.0679	10.333
10/5/2003	0:00:00	-6.8612	-6.7469	-6.8395	-6.7579	-6.6657	-6.796	-6.7469
10/5/2003	12:00:00	-4.354	-5.1788	-4.1809	-4.9084	-5.5835	-4.924	-4.8394
11/5/2003	0:00:00	-4.0654	-4.0863	-4.0444	-4.1073	-4.0863	-4.1282	-4.1073
11/5/2003	12:00:00	-2.9972	-3.4803	-2.4855	-2.8988	-3.5168	-3.023	-2.0276
12/5/2003	0:00:00	-7.0137	-7.0137	-6.9483	-6.9701	-6.9865	-7.0137	-6.9701
12/5/2003	12:00:00	-2.2024	-3.1944	-2.3568	-2.8317	-3.6469	-2.7128	-2.6508

05/13/03	0:00:00	-5.9802	-5.9802	-5.9158	-5.9372	-5.9531	-5.9802	-5.9372
05/13/03	12:00:00	-2.4855	-3.4803	-2.3001	-2.6972	-4.0863	-3.1838	-2.6298
05/14/03	0:00:00	-5.8834	-5.8834	-5.8297	-5.8297	-5.8511	-5.8673	-5.8511
05/14/03	12:00:00	-5.744	-6.3193	-5.6266	-5.744	-6.6004	-6.1253	-5.8082
05/15/03	0:00:00	-7.7984	-7.7543	-7.6881	-7.7156	-7.7763	-7.7763	-7.7322
05/15/03	12:00:00	-5.8297	-6.8994	-5.5195	-5.7868	-7.5834	-6.4003	-6.2277
05/16/03	0:00:00	-9.1846	-9.1449	-9.0998	-9.1164	-9.1164	-9.1616	-9.1164
05/16/03	12:00:00	-3.4021	-3.9607	-2.5061	-3.0336	-3.7513	-3.3606	-1.6024
05/17/03	0:00:00	-5.2903	-4.9875	-5.365	-5.4768	-5.5835	-5.8082	-5.1628
05/17/03	12:00:00	0.2721	0.0851	0.8317	-0.2285	0.5749	0.711	2.6166
05/18/03	0:00:00	-3.3503	-3.2931	-3.3503	-3.6627	-3.6835	-3.8506	-3.2515
05/18/03	12:00:00	6.3024	6.0477	6.6668	6.5418	6.5219	6.8616	7.9275
05/19/03	0:00:00	3.7799	3.7799	3.8145	3.6551	3.5155	3.4556	3.8345
05/19/03	12:00:00	4.0491	3.8743	4.9509	4.0939	5.0558	5.3099	6.9864
05/20/03	0:00:00	-0.7914	-0.6696	-0.7711	-0.8118	-0.7255	-0.7914	-0.7255
05/20/03	12:00:00	5.9829	6.1876	6.8416	5.9431	6.8017	6.4021	8.6304
05/21/03	0:00:00	0.4084	0.4084	0.4186	0.3882	0.5294	0.3277	0.5092
05/21/03	12:00:00	2.3968	2.1115	2.8416	2.3968	1.9914	2.3968	3.1561
05/22/03	0:00:00	-1.0969	-1.0512	-1.0766	-1.0766	-1.0512	-1.1173	-1.0512
05/22/03	12:00:00	1.8962	0.9574	1.9914	1.4499	0.4689	1.756	1.6755
05/23/03	0:00:00	-1.9711	-1.956	-1.9146	-1.9711	-1.956	-1.9916	-1.9301
05/23/03	12:00:00	-0.4005	-1.5461	-0.4005	-0.8677	-2.0586	-0.7358	-0.7255
05/24/03	0:00:00	-5.5621	-5.5621	-5.5355	-5.5621	-5.5835	-5.6048	-5.5464
05/24/03	12:00:00	-2.0121	-2.5679	-1.7148	-2.4237	-2.9144	-2.4081	-2.3362
05/25/03	0:00:00	-4.6333	-4.6122	-4.5701	-4.6544	-4.6122	-4.6703	-4.5912
05/25/03	12:00:00	0.0954	-0.7914	0.252	-0.3348	-1.0512	-0.2942	0.3529
05/26/03	0:00:00	-3.9188	-3.9188	-3.8506	-3.877	-3.9397	-3.9188	-3.877
05/26/03	12:00:00	2.9715	0.9373	1.8962	1.2742	-0.0663	1.3545	1.4499
05/27/03	0:00:00	0.897	0.7915	0.9172	0.4689	0.4186	0.252	0.9172
05/27/03	12:00:00	9.9475	9.649	10.1298	10.0082	9.8917	10.6378	10.9028
05/28/03	0:00:00	8.5701	8.726	8.5401	8.4094	8.6857	8.3843	8.6857
05/28/03	12:00:00	14.4323	14.2692	14.9606	14.6539	14.5062	14.4748	15.5671
05/29/03	0:00:00	0.4487	0.4689	0.4689	0.4487	0.4689	0.4335	0.4487
05/29/03	12:00:00	5.8434	5.3745	6.3472	5.2151	4.9911	5.4892	5.6937
05/30/03	0:00:00	0.2721	0.2721	0.2923	0.2923	0.2721	0.2923	0.2923
05/30/03	12:00:00	3.5952	3.1312	3.7498	3.5155	2.8416	3.3706	3.4556
05/31/03	0:00:00	-1.7047	-1.4644	-1.4644	-1.9916	-1.8326	-2.2179	-1.4795
05/31/03	12:00:00	5.7636	5.4892	6.7068	5.9431	6.0477	6.1725	7.2866
1/6/2003	0:00:00	2.6517	2.5367	2.6965	2.2817	2.2968	2.0715	2.6517
1/6/2003	12:00:00	13.7607	13.5778	15.1094	14.5854	14.1483	13.7031	15.3379
2/6/2003	0:00:00	8.5401	8.751	8.6103	8.751	8.751	8.6706	8.8064
2/6/2003	12:00:00	8.2836	8.4795	9.8562	9.0886	9.1491	8.8064	10.4295
3/6/2003	0:00:00	0.2417	0.2721	0.252	0.2417	0.252	0.2066	0.252
3/6/2003	12:00:00	8.0629	7.4515	8.5701	7.762	7.3866	8.1231	8.5401
4/6/2003	0:00:00	7.742	7.7722	7.6468	7.612	7.7722	7.2866	7.9275
4/6/2003	12:00:00	9.2701	10.348	11.2497	9.7299	12.1732	10.0388	12.8757
5/6/2003	0:00:00	3.989	3.9544	3.9292	3.7946	3.8743	3.7299	3.9544
5/6/2003	12:00:00	9.8562	9.649	10.6581	10.2162	9.6086	9.8562	10.6835
6/6/2003	0:00:00	0.6707	0.6707	0.7361	0.7258	0.6707	0.6707	0.711
6/6/2003	12:00:00	3.9394	3.211	4.1935	3.6351	2.8216	3.8345	3.7799
7/6/2003	0:00:00	0.4335	0.4186	0.4487	0.3529	0.4084	0.4084	0.4084
7/6/2003	12:00:00	11.1221	11.3931	12.2711	11.0609	12.0238	11.434	13.0988



8/6/2003	0:00:00	6.4921	6.6469	6.6469	6.3321	6.3024	5.9231	6.6668
8/6/2003	12:00:00	7.742	8.0278	9.5377	8.2688	9.553	9.1088	10.7956
9/6/2003	0:00:00	4.8911	4.8115	4.9013	4.7964	4.7566	4.7318	4.8363
9/6/2003	12:00:00	10.7192	10.4702	12.1526	10.3583	11.0097	10.7802	12.2299
10/6/2003	0:00:00	0.2268	0.2066	0.2721	0.2268	0.2066	0.2066	0.2417
10/6/2003	12:00:00	5.5091	5.3647	6.0879	5.3745	5.3948	5.5692	6.0879
11/6/2003	0:00:00	-0.4005	-0.4005	-0.4005	-0.4005	-0.4005	-0.4005	-0.4005
11/6/2003	12:00:00	3.5952	3.5952	4.9013	3.4105	3.8894	3.6103	4.7318
12/6/2003	0:00:00	-2.5216	-2.5321	-2.3669	-2.8574	-2.7334	-3.023	-2.3669
12/6/2003	12:00:00	3.989	4.5724	6.1876	4.4029	5.8682	4.5874	6.4921
06/13/03	0:00:00	-0.2385	-0.0106	0.3277	-0.9901	-0.6087	-1.357	0.1662
06/13/03	12:00:00	4.6273	5.0558	6.2824	4.7318	6.2075	5.0309	7.0814
06/14/03	0:00:00	2.6766	2.1764	2.8216	1.2742	1.2542	0.7258	2.3168
06/14/03	12:00:00	11.1221	11.1425	12.8085	11.0609	12.0653	11.4082	12.9848
06/15/03	0:00:00	4.7017	4.7017	4.6671	4.5623	4.6818	4.5473	4.722
06/15/03	12:00:00	6.8115	6.1725	7.0215	6.442	5.8532	6.3671	6.3871
06/16/03	0:00:00	2.2017	2.3368	2.2968	2.2968	2.3368	2.2565	2.2968
06/16/03	12:00:00	5.7885	5.1505	6.2674	5.6039	5.0907	5.9431	6.0879
06/17/03	0:00:00	-0.0663	0.0043	-0.1171	-0.1728	-0.0106	-0.193	-0.0312
06/17/03	12:00:00	5.6839	5.9032	7.2866	6.3472	6.8616	6.1078	7.8021
06/18/03	0:00:00	0.0447	0.0298	0.0851	0.0954	0.0954	0.146	0.0851
06/18/03	12:00:00	4.9911	4.5623	5.629	5.0456	4.8911	5.1704	6.0078
06/19/03	0:00:00	4.642	4.2085	4.6671	3.5354	3.4805	3.0363	4.4127
06/19/03	12:00:00	5.4892	6.4021	7.4666	6.1477	8.2386	6.1876	8.6103
06/20/03	0:00:00	1.0783	1.0632	1.1333	1.0632	1.0529	1.0529	1.0931
06/20/03	12:00:00	8.2386	8.4094	9.7299	8.4647	9.553	8.9476	10.5768
06/21/03	0:00:00	3.9292	4.2285	3.8743	3.675	4.0939	3.5554	4.1337
06/21/03	12:00:00	15.2473	16.1887	16.9836	16.0759	17.6391	16.0221	18.5394
06/22/03	0:00:00	4.7318	4.722	4.6671	4.3679	4.5273	4.0491	4.7318
06/22/03	12:00:00	11.8234	11.9931	13.0001	12.2093	12.4828	12.1887	13.6353
06/23/03	0:00:00	6.5418	6.2425	6.4921	5.8832	5.5343	4.7318	6.5068
06/23/03	12:00:00	5.7087	5.8234	7.0814	6.0078	7.0414	6.8616	8.3238
06/24/03	0:00:00	4.2883	4.1935	4.8712	2.9964	3.196	2.4567	4.2732
06/24/03	12:00:00	9.1088	9.2902	10.3127	9.5732	10.0537	9.4113	10.8467
06/25/03	0:00:00	8.9275	8.6857	9.1491	7.9877	8.083	7.612	8.9678
06/25/03	12:00:00	16.3609	16.5555	17.7215	17.42	17.2178	16.3125	17.7708
06/26/03	0:00:00	15.2898	14.9818	15.4978	14.1483	14.1852	13.7189	15.1891
06/26/03	12:00:00	18.3229	18.523	19.9795	19.7183	19.4412	18.2731	19.8432
06/27/03	0:00:00	10.7956	10.4295	10.9793	9.6338	9.7703	9.1491	10.6835
06/27/03	12:00:00	14.1483	14.5062	15.8183	15.7327	15.3753	14.0802	15.7755
06/28/03	0:00:00	10.7395	10.4295	10.8824	9.7299	9.8562	9.3104	10.6735
06/28/03	12:00:00	15.4765	15.8344	17.196	16.9402	16.7016	15.3753	17.2178
06/29/03	0:00:00	13.557	13.4787	13.6459	12.9848	13.1352	12.7671	13.5778
06/29/03	12:00:00	19.5088	19.9795	21.2563	21.0474	20.8102	19.351	21.2098
06/30/03	0:00:00	16.8804	16.4634	17.0706	15.2473	15.4391	14.6539	16.5987
06/30/03	12:00:00	21.935	22.5095	23.1679	23.3851	23.355	21.8117	23.6583
1/7/2003	0:00:00	17.8094	17.5076	17.9252	16.4634	16.5771	15.8878	17.683
1/7/2003	12:00:00	23.0177	22.527	22.8734	22.6403	22.3133	22.6942	22.7357
2/7/2003	0:00:00	19.6448	19.6163	19.5992	19.5088	19.5373	19.4637	19.6448
2/7/2003	12:00:00	24.6845	24.859	25.3537	25.3286	25.5369	24.859	25.6319
3/7/2003	0:00:00	18.2731	18.3066	18.2565	18.2565	18.3229	18.2122	18.3066
3/7/2003	12:00:00	23.5066	23.7193	24.2889	24.1905	24.5111	23.695	24.6414

4/7/2003	0:00:00	8.0278	8.0278	8.0278	7.9476	7.9676	7.9275	8.0278
4/7/2003	12:00:00	14.8232	14.5221	16.2694	15.1094	15.1094	14.5643	16.0221
5/7/2003	0:00:00	13.6613	13.3694	13.8549	12.4828	12.4828	12.1064	13.6196
5/7/2003	12:00:00	22.6403	22.6164	23.1438	22.7839	22.8734	22.6641	23.355
6/7/2003	0:00:00	18.3894	18.1459	18.5008	17.4419	17.4419	17.1142	18.2844
6/7/2003	12:00:00	20.2988	19.9795	20.6432	20.3446	19.7354	19.934	20.5283
7/7/2003	0:00:00	12.8187	12.8343	12.8187	12.8187	12.8187	12.7878	12.8187
7/7/2003	12:00:00	7.8424	7.7722	7.8224	7.9173	7.8021	8.0278	7.8625
8/7/2003	0:00:00	6.1477	6.2075	6.0879	6.2425	6.2824	6.3024	6.1624
8/7/2003	12:00:00	10.7549	10.4905	10.8467	10.5768	10.196	10.5208	10.5971
9/7/2003	0:00:00	6.6469	6.6017	6.6469	6.5068	6.5817	6.4921	6.6469
9/7/2003	12:00:00	10.9793	10.7549	11.1579	10.862	10.5108	10.7802	10.9178
10/7/2003	0:00:00	6.9216	6.9016	6.9415	6.9216	6.8616	6.8616	6.9216
10/7/2003	12:00:00	12.7515	13.6353	15.3379	12.7257	15.5671	13.4685	16.1404
11/7/2003	0:00:00	11.6643	11.2701	11.885	10.3583	10.3939	9.7906	11.5005
11/7/2003	12:00:00	11.0813	10.5971	11.3264	10.6988	10.196	10.6174	10.816
12/7/2003	0:00:00	10.6378	10.3583	10.862	9.5732	9.6895	9.124	10.6835
12/7/2003	12:00:00	15.9524	15.845	16.2102	16.0544	15.9254	15.845	16.3341
07/13/03	0:00:00	9.9727	9.988	9.9727	9.9475	9.988	9.9727	9.988
07/13/03	12:00:00	8.3439	8.1833	9.366	8.4094	8.5602	8.1632	9.2902
07/14/03	0:00:00	8.1833	8.2234	8.1231	8.2034	8.2234	8.1432	8.1231
07/14/03	12:00:00	16.9836	18.1129	19.8659	17.5787	19.934	17.2507	19.7807
07/15/03	0:00:00	8.9678	8.9879	8.9476	8.9678	9.0081	8.9476	8.9678
07/15/03	12:00:00	8.726	8.2688	8.7662	8.52	8.0278	8.3439	8.5401
07/16/03	0:00:00	5.4892	5.5692	5.4892	5.4892	5.5091	5.4693	5.3448
07/16/03	12:00:00	6.3223	6.0679	6.4021	6.3223	6.2275	6.1278	6.3671
07/17/03	0:00:00	5.1903	5.1704	5.1903	5.0757	5.1704	5.0558	5.2053
07/17/03	12:00:00	6.7817	6.5418	6.8616	6.5219	6.3472	6.5068	6.6217
07/18/03	0:00:00	8.1231	8.2488	8.1833	8.108	8.4446	8.1231	8.4446
07/18/03	12:00:00	11.6798	11.5159	12.1526	11.7158	11.5005	11.5364	12.0858
07/19/03	0:00:00	10.7802	10.7802	10.8824	10.1501	10.6174	9.5732	11.1017
07/19/03	12:00:00	14.5854	14.7543	15.6791	14.6435	14.9606	14.5062	15.5083
07/20/03	0:00:00	9.3911	9.4871	9.3507	9.1088	9.3911	8.8922	9.5732
07/20/03	12:00:00	21.5597	22.3133	23.4518	21.9234	23.3851	21.5306	23.6463
07/21/03	0:00:00	15.7969	15.7755	15.8344	15.1463	15.3753	14.7913	15.845
07/21/03	12:00:00	23.1016	24.5297	24.9588	23.4518	25.3789	22.9996	25.1589
07/22/03	0:00:00	15.4391	15.5832	15.3271	15.3111	15.6259	15.2473	15.5244
07/22/03	12:00:00	21.088	21.4839	22.8318	21.3787	23.0776	21.5478	23.1679
07/23/03	0:00:00	15.5457	15.7113	15.5083	15.4765	15.7541	15.3965	15.6686
07/23/03	12:00:00	14.9818	14.7913	15.5832	14.9926	14.5432	14.7279	15.3753
07/24/03	0:00:00	10.4548	10.5564	10.348	10.5208	10.7802	10.5411	10.6378
07/24/03	12:00:00	19.7068	19.3791	20.3675	18.8573	19.0142	18.9412	19.4186
07/25/03	0:00:00	17.42	17.4638	17.4035	17.42	17.5076	17.4035	17.4419
07/25/03	12:00:00	11.7773	11.7568	11.7773	11.8133	11.7978	11.7773	11.7568
07/26/03	0:00:00	11.6643	11.6798	11.6643	11.7158	11.7978	11.6953	11.7568
07/26/03	12:00:00	8.7059	8.5701	8.726	8.6455	8.52	8.6455	8.5902
07/27/03	0:00:00	6.3321	6.462	6.427	6.482	6.4021	6.3472	6.2425
07/27/03	12:00:00	11.2497	11.5005	12.6067	11.1579	11.6543	11.5364	12.4828
07/28/03	0:00:00	5.2053	5.2302	5.1903	5.1106	5.285	5.1505	5.285
07/28/03	12:00:00	6.2275	5.9431	6.3024	6.1477	5.8434	6.0477	6.1278
07/29/03	0:00:00	5.6437	5.664	5.629	5.6039	5.7087	5.6039	5.6937
07/29/03	12:00:00	18.2844	18.4786	19.059	18.3229	18.6397	18.2844	19.059

07/30/03	0:00:00	8.1432	8.2234	8.108	8.1632	8.2488	8.1632	8.1632
07/30/03	12:00:00	7.4066	6.9664	7.6018	7.1414	6.7817	7.0414	7.2866
07/31/03	0:00:00	5.3948	5.3948	5.3745	5.3745	5.4095	5.3745	5.4095
07/31/03	12:00:00	8.1432	8.2688	9.8463	8.1432	9.0685	8.4795	9.7906
1/8/2003	0:00:00	4.2085	4.3879	4.0838	4.2883	4.5623	4.3082	4.4029
1/8/2003	12:00:00	10.2721	10.6581	12.1887	9.8562	10.333	9.8562	11.1425
2/8/2003	0:00:00	7.0015	7.1165	6.9664	7.1165	7.2764	7.1014	7.1414
2/8/2003	12:00:00	11.5723	13.2497	13.9177	11.8133	13.7449	11.4901	13.9335
3/8/2003	0:00:00	7.8224	7.9877	7.7722	7.9676	8.1833	7.9476	7.9877
3/8/2003	12:00:00	15.5671	15.8183	16.68	15.6952	16.291	15.3379	17.0542
4/8/2003	0:00:00	7.2764	7.2764	7.2866	7.2866	7.2764	7.2564	7.2764
4/8/2003	12:00:00	10.9586	10.5208	11.5978	10.8467	10.5768	10.4548	11.5159
5/8/2003	0:00:00	9.6994	9.8463	9.7299	9.7703	9.8917	9.6994	9.8463
5/8/2003	12:00:00	3.6201	3.5554	3.6351	3.6551	3.6351	3.5952	3.6201
6/8/2003	0:00:00	2.0114	2.1115	1.9914	2.0363	2.1666	2.0514	2.0715
6/8/2003	12:00:00	8.8922	8.5701	9.2145	8.751	8.3843	8.5602	8.9476
7/8/2003	0:00:00	6.482	6.5219	6.4021	6.427	6.6217	6.482	6.462
7/8/2003	12:00:00	4.1687	3.9544	4.2484	4.1935	4.1138	4.1138	4.1138
8/8/2003	0:00:00	0.7915	0.7915	0.8067	0.867	0.8871	0.8469	0.8067
8/8/2003	12:00:00	1.8611	1.7008	1.9313	1.8962	1.796	1.8308	1.8509
9/8/2003	0:00:00	6.8115	6.8416	6.8017	6.8115	6.9216	6.8017	6.8416
9/8/2003	12:00:00	16.7016	17.1577	18.5008	16.9402	17.6556	16.6147	18.3451
10/8/2003	0:00:00	10.3583	10.3939	10.3583	10.3939	10.4905	10.3736	10.4142
10/8/2003	12:00:00	12.0238	11.8645	12.2711	11.8133	10.9178	11.6338	11.6953
11/8/2003	0:00:00	11.6133	11.6543	11.5978	11.5723	11.6798	11.5978	11.6643
11/8/2003	12:00:00	3.9691	3.7498	4.0289	3.7946	3.5753	3.7498	3.8495
12/8/2003	0:00:00	1.6354	1.6906	1.6554	1.6554	1.7156	1.6354	1.6755
12/8/2003	12:00:00	5.9231	6.1078	7.7072	5.9032	6.7618	6.0078	7.2364
08/13/03	0:00:00	5.3647	5.3745	5.3647	5.3647	5.3647	5.3249	5.285
08/13/03	12:00:00	6.8266	6.6217	7.2564	6.462	6.6017	6.6868	7.1414
08/14/03	0:00:00	6.3321	6.4021	6.3871	6.3871	6.4021	6.3472	6.3321
08/14/03	12:00:00	12.7878	12.4828	13.6613	12.5654	12.7515	12.9535	13.557
08/15/03	0:00:00	11.3723	11.5005	11.2497	11.4696	11.7363	11.5005	11.5723
08/15/03	12:00:00	17.4803	18.4505	20.065	17.914	18.9973	17.3545	19.4637
08/16/03	0:00:00	14.7702	14.8125	14.7279	14.7913	14.8388	14.8125	14.8125
08/16/03	12:00:00	16.9836	17.2178	19.7807	17.2178	18.1017	16.9836	18.9243
08/17/03	0:00:00	8.2836	8.2836	8.3037	8.2836	8.2836	8.2688	8.2836
08/17/03	12:00:00	7.762	7.5618	7.7722	7.7219	7.5217	7.612	7.6668
08/18/03	0:00:00	4.5473	4.5874	4.5473	4.5473	4.6273	4.5724	4.5623
08/18/03	12:00:00	8.9879	8.6103	9.0533	8.8266	8.3639	8.5902	8.8266
08/19/03	0:00:00	3.9093	4.0491	3.8495	3.9394	4.1537	4.0289	3.989
08/19/03	12:00:00	6.7817	6.1876	7.0015	6.5618	5.9829	6.2425	6.6469
08/20/03	0:00:00	2.1515	2.1764	2.1515	2.1764	2.1764	2.1764	2.1764
08/20/03	12:00:00	7.8424	7.5066	8.0932	7.5467	7.0814	7.5467	7.5618
08/21/03	0:00:00	6.0679	6.1078	6.0477	6.1078	6.1477	6.0879	6.1078
08/21/03	12:00:00	8.083	7.8424	8.2488	7.7722	7.5066	7.8224	7.9676
08/22/03	0:00:00	6.6868	6.8115	6.6469	6.8115	6.9664	6.8115	6.8266
08/22/03	12:00:00	14.2902	13.8025	14.4748	14.1483	13.7607	14.1483	14.2692
08/23/03	0:00:00	5.664	5.6937	5.664	5.6937	5.8035	5.6937	5.7087
08/23/03	12:00:00	6.3024	5.9032	6.5068	6.1725	5.7885	5.9431	6.3223
08/24/03	0:00:00	7.5818	7.5217	7.5217	7.5217	7.5217	7.4515	7.4666
08/24/03	12:00:00	12.6067	12.7671	14.0173	12.9848	13.4685	12.5447	14.0802

08/25/03	0:00:00	4.5623	4.5623	4.5074	4.5724	4.6073	4.5874	4.5473
08/25/03	12:00:00	5.7885	5.5241	5.9032	5.5692	5.2053	5.5493	5.5493
08/26/03	0:00:00	6.1624	6.2824	6.1624	6.2674	6.4021	6.2674	6.3024
08/26/03	12:00:00	12.3742	12.1064	12.6274	12.0653	11.8234	12.0858	12.1526
08/27/03	0:00:00	8.3238	8.3439	8.3238	8.3238	8.3639	8.3238	8.3439
08/27/03	12:00:00	9.1845	8.882	9.2145	9.0431	8.751	8.9476	8.9275
08/28/03	0:00:00	4.9708	5.011	4.9911	4.9911	5.0309	4.9708	5.011
08/28/03	12:00:00	7.1414	6.7817	7.2364	6.9864	6.6367	6.7817	7.0215
08/29/03	0:00:00	5.6937	5.6937	5.6937	5.6937	5.7087	5.6937	5.6937
08/29/03	12:00:00	8.6706	8.9879	11.3519	8.882	10.2162	8.5701	10.9997
08/30/03	0:00:00	3.2359	3.2509	3.2509	3.2509	3.2908	3.2359	3.2709
08/30/03	12:00:00	11.7978	12.1526	13.2238	12.0238	12.4155	11.5723	13.0001
08/31/03	0:00:00	11.5569	11.6643	11.5159	11.6543	11.7773	11.6543	11.6643
08/31/03	12:00:00	16.1777	16.0383	17.4638	15.9524	15.9254	15.6791	16.5013
1/9/2003	0:00:00	3.7799	3.7799	3.7799	3.7799	3.7799	3.7799	3.7799
1/9/2003	12:00:00	4.5874	4.348	4.7017	4.4875	4.1935	4.3082	4.4326
2/9/2003	0:00:00	3.5554	3.5952	3.5952	3.5753	3.6103	3.5554	3.5952
2/9/2003	12:00:00	12.4828	13.5361	14.9818	13.2081	14.1222	12.3174	14.6276
3/9/2003	0:00:00	8.9476	9.0431	8.9123	8.9879	9.0886	9.0081	8.9879
3/9/2003	12:00:00	9.3762	9.2145	9.5073	9.3104	9.0431	9.2145	9.366



-103.702	1	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702	-103.702
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4.3281	1	2.9814	3.9691	2.6366	2.6766	3.4805	-1.3366	-8.8799
-5.5355	1	-5.365	-5.5195	-5.4607	-5.4607	-5.5195	-0.629	-9.6616
1.3545	1	0.3529	1.0783	0.252	0.3882	0.7714	-1.3008	-9.6616
-0.6087	1	-0.4667	-0.6493	-0.5731	-0.5731	-0.6493	-0.2285	-9.5876
3.8345	1	3.7299	3.9292	4.3082	5.0456	5.7636	-0.5478	-9.4623
-2.3362	1	-2.259	-2.3362	-2.3568	-2.3568	-2.3362	-0.193	-9.326
1.8962	1	1.5101	1.4348	2.5016	3.3507	3.9292	-0.2285	-9.2298
-0.7914	1	-0.5884	-0.7711	-0.7052	-0.7052	-0.7914	-0.1575	-9.0772
4.8911	1	5.2501	5.1505	7.1165	7.612	9.2145	-0.0312	-8.9866
-2.3362	1	-2.2024	-2.3001	-2.4081	-2.3362	-2.4081	-0.1728	-8.8685
0.5092	1	0.0298	0.252	0.2268	0.2268	0.7258	-0.2385	-8.7392
-1.4644	1	-1.3824	-1.4644	-1.4999	-1.4795	-1.4999	-0.2385	-8.6272
0.0447	1	-0.355	-0.1323	-0.2133	-0.274	0.252	-0.2942	-8.4648
-4.0444	1	-3.9974	-4.0286	-4.0654	-4.0444	-4.0654	-0.3703	-7.8705
-2.3875	1	-2.9144	-2.3362	-2.5216	-2.6972	-1.7507	-1.3008	-6.9701
-6.7469	1	-6.6004	-6.6657	-6.7251	-6.6874	-6.7469	-2.6298	-6.5137
-2.5886	1	-3.1838	-2.4493	-1.2396	-1.8736	-0.4005	-2.2384	-6.3624
-6.7469	1	-6.622	-6.7251	-6.7091	-6.6874	-6.7251	-3.4178	-6.2277
-5.0299	1	-5.4981	-4.8394	-4.8023	-5.0407	-4.0444	-3.3503	-6.1253
-8.5095	1	-8.4425	-8.5095	-8.5095	-8.5095	-8.5095	-4.4858	-6.1253
-4.6915	1	-5.4607	-3.8506	-2.1768	-2.6508	-2.5216	-3.9607	-6.039
-11.2502	1	-11.0679	-11.2502	-11.1915	-11.1915	-11.2622	-5.9372	-6.0552
-1.6638	1	-2.259	-0.8118	0.0298	0.2417	0.4186	-2.8988	-5.6479
-4.924	1	-4.8234	-4.8023	-4.8553	-4.8234	-4.8553	-1.26	-3.5168
-2.9558	1	-3.6052	-3.0336	-3.023	-3.2151	-2.0791	-2.6867	-2.5473
-9.2807	1	-9.2298	-9.2581	-9.2807	-9.2807	-9.2807	-4.924	-2.4237
-5.996	1	-6.5844	-5.4981	-4.0183	-4.6544	-3.5168	-4.333	-2.5679
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-1.8326	1	-2.4493	-0.5731	0.5749	0.1106	0.5749	-2.6508	-3.023
-2.4855	1	-2.3207	-2.5061	-2.4081	-2.4081	-2.5321	-1.3724	-2.5679
5.7885	1	5.9231	7.1414	9.9727	8.8922	8.8064	-1.2754	-1.9916
-6.7469	1	-6.622	-6.7579	-6.7469	-6.7469	-6.796	-0.7255	-1.7047
-4.8869	1	-5.3277	-4.7811	-5.0407	-5.1788	-4.8023	-3.9607	-1.5461
-4.0444	1	-4.0286	-4.1073	-4.1492	-4.1282	-4.1492	-3.3347	-1.4795
-3.0336	1	-3.3503	-3.023	-2.9972	-2.6867	-2.4855	-2.2179	-1.4795
-6.9701	1	-6.883	-6.9154	-6.9483	-6.9265	-6.9483	-3.6261	-1.4795
-2.9558	1	-3.3503	-2.8988	-3.023	-3.0907	-2.3001	-2.6867	-1.5461

-5.9372	1	-5.894	-5.9372	-5.9531	-5.9531	-5.9372	-2.9402	-1.582
-3.2515	1	-3.6835	-3.023	-3.4021	-3.3606	-2.2384	-2.7128	-1.6638
-5.8511	1	-5.7868	-5.8511	-5.8511	-5.8511	-5.8511	-3.0489	-1.7047
-5.9802	1	-6.1684	-5.9372	-5.9802	-6.0552	-5.6479	-3.9188	-1.7047
-7.7322	1	-7.6881	-7.7322	-7.7543	-7.7543	-7.7543	-3.9397	-1.8122
-6.2761	1	-6.8395	-6.2977	-6.7091	-6.622	-6.039	-3.8143	-1.7917
-9.1164	1	-9.0546	-9.0998	-9.1164	-9.1164	-9.1164	-4.1073	-1.8635
-3.4438	1	-3.3606	-3.0907	-2.8317	-2.259	-1.8736	-2.666	-1.8736
-5.3968	1	-5.1628	-5.2903	-6.039	-5.8297	-6.4542	-1.0308	-1.9146
0.6502	1	0.489	0.3882	0.8469	2.0363	2.2417	-1.1377	-1.956
-3.5844	1	-3.5168	-3.5011	-4.0444	-3.9397	-4.1912	-0.4005	-1.9301
6.6469	1	6.5219	6.6217	6.5068	7.4515	8.0629	0.0043	-1.956
3.6201	1	3.6351	3.5952	3.2509	3.3157	3.176	0.5749	-1.9711
4.3281	1	4.1337	4.3281	5.4892	6.0679	6.9016	2.8966	-1.9916
-0.7255	1	-0.7052	-0.7508	-0.8321	-0.7914	-0.8677	0.0851	-1.9916
6.2275	1	6.9664	6.8017	7.3266	7.9026	8.3639	1.2742	-2.0121
0.4335	1	0.5749	0.4335	0.5092	0.4689	0.4186	0.4186	-2.0121
2.3617	1	2.2565	2.5567	2.9365	2.9565	3.3507	1.5752	-2.0276
-1.0612	1	-1.0105	-1.0612	-1.0766	-1.0766	-1.0969	-0.193	-2.0276
1.4348	1	0.897	1.3545	1.4148	1.239	2.1666	-0.0106	-2.0276
-1.956	1	-1.8941	-1.956	-1.9916	-1.9711	-1.9711	-0.1575	-2.038
-1.0766	1	-1.6434	-1.0969	-1.0105	-1.1581	-0.0663	-0.1575	-2.0276
-5.5464	1	-5.5195	-5.5464	-5.5835	-5.5621	-5.5621	-0.5275	-2.038
-2.4855	1	-2.7541	-2.3568	-2.5473	-2.6298	-2.3207	-1.4999	-2.0586
-4.6333	1	-4.5701	-4.6122	-4.6333	-4.6122	-4.6122	-2.6298	-2.038
-0.5478	1	-0.9341	-0.274	-0.1323	-0.4311	0.4335	-0.8321	-2.0946
-3.877	1	-3.8612	-3.877	-3.8979	-3.8979	-3.877	-0.355	-2.0791
1.5752	1	0.7512	1.756	0.867	0.8317	1.6153	-0.5072	-2.0946
0.61	1	0.6707	0.897	0.0954	0.1864	0.0298	-0.1575	-2.1202
10.0082	1	10.5411	10.7802	10.6735	10.816	11.9827	3.0363	-2.1202
8.5701	1	8.7662	8.5902	8.3843	8.4245	8.2488	4.1138	-2.1202
14.4323	1	14.3326	14.7279	14.5854	14.5432	15.1463	8.4795	-2.1562
0.489	1	0.5294	0.4487	0.4335	0.4335	0.4335	0.9976	-2.1357
5.2053	1	4.8911	5.3249	5.0757	5.0456	5.4095	4.0838	-2.1202
0.2923	1	0.3277	0.2721	0.2721	0.252	0.2923	0.711	-2.1357
3.4305	1	3.141	3.3157	3.1312	3.141	3.4556	3.196	-2.1768
-1.6792	1	-1.6792	-1.582	-2.3568	-2.2796	-2.5061	-0.1171	-2.1562
5.6937	1	5.9431	6.1477	6.3024	6.9016	7.1165	1.6554	-2.1768
2.5767	1	2.4567	2.6965	2.0715	2.1515	2.0363	1.7008	-2.1562
13.5153	1	13.8131	13.9335	13.8759	14.1483	14.5854	11.0251	-2.1357
8.7863	1	8.9275	8.7059	8.6103	8.6857	8.5902	8.52	-2.1202
8.3992	1	9.0685	9.1491	9.0886	9.8108	10.069	10.0537	-2.1562
0.3125	1	0.3681	0.2721	0.2268	0.2417	0.2066	1.5601	-2.1357
7.4515	1	7.0614	7.7722	7.762	7.7072	8.4094	8.882	-2.1562
8.2034	1	8.2688	8.0429	7.4666	7.5618	7.1414	6.3024	-2.1562
9.0431	1	10.0082	10.2924	10.2312	11.2088	11.1221	11.4696	-2.1768
4.0089	1	3.9691	3.9691	3.7299	3.7698	3.69	3.7299	-2.1357
9.7703	1	9.6994	9.9475	9.8917	10.0537	10.5564	11.5569	-2.1768
0.711	1	0.7361	0.711	0.711	0.6908	0.7258	1.6554	-2.1768
3.6201	1	3.1113	3.7299	3.5354	3.4556	4.1537	4.4676	-2.1768
0.4084	1	0.4487	0.4186	0.3882	0.4084	0.4084	1.796	-2.1768
11.2292	1	11.6133	12.0086	11.5005	12.4155	12.7878	12.1422	-2.1768

6.8816	1	6.8115	6.8416	5.963	6.0477	5.8434	8.1432	-2.1562
7.8825	1	9.0431	9.3911	9.7146	10.5108	11.2088	11.1425	-2.1562
4.8911	1	4.8513	4.8513	4.7318	4.7318	4.7566	4.9911	-2.1562
10.4702	1	10.4905	11.1221	10.7395	11.4696	11.885	10.8467	-2.1768
0.2268	1	0.2417	0.2268	0.1662	0.1864	0.2066	0.9172	-2.1768
5.1505	1	4.9708	5.5692	5.3745	5.4095	5.8234	6.8416	-2.1562
-0.4005	1	-0.3703	-0.4005	-0.4005	-0.4005	-0.4005	-0.193	-2.1768
2.9964	1	2.9166	3.7799	3.6103	3.8145	4.2085	1.8611	-2.1562
-2.3875	1	-2.5679	-2.3362	-3.0699	-3.023	-3.1682	-0.6696	-2.1562
3.7799	1	4.6073	5.0558	4.7964	5.9032	5.8234	5.0757	-2.1357
-0.2285	1	-0.5275	-0.0663	-1.6229	-1.4236	-1.8122	-0.4108	-2.1562
4.3082	1	4.7318	5.4294	5.285	5.8832	5.998	2.4767	-2.1202
2.6517	1	1.8611	2.6615	0.4186	0.5749	0.1106	1.5101	-2.1357
11.0609	1	11.4901	11.9264	11.5723	12.5241	12.5447	13.8917	-2.1562
4.7318	1	4.7566	4.7318	4.5724	4.6073	4.5074	5.2302	-2.1357
6.427	1	5.998	6.482	6.1078	6.0477	6.4021	6.2075	-2.1202
2.1764	1	2.2565	2.1764	2.1764	2.1764	2.1764	3.0164	-2.1562
5.27	1	4.9708	5.5892	5.664	5.5493	6.1624	7.1814	-2.1202
0.0043	1	0.0851	-0.0514	-0.193	-0.1323	-0.274	1.0783	-2.1357
5.7486	1	6.4921	6.7618	6.5068	7.1614	7.5217	9.8562	-2.1202
0.0649	1	0.0954	0.0447	0.1662	0.1258	0.2066	0.61	-2.1202
4.5724	1	4.5273	5.3099	5.7087	5.5241	6.2824	7.6819	-2.1202
4.5874	1	3.9394	4.642	2.8216	2.9814	2.6166	3.6103	-2.1202
5.4693	1	6.4921	6.6668	6.6017	7.7072	7.2764	8.5602	-2.0946
1.0931	1	1.0931	1.0931	1.0328	1.0529	1.0632	1.4148	-2.0946
7.9676	1	8.5701	9.1088	9.4871	9.9322	10.0388	11.9005	-2.0791
4.0089	1	4.0939	3.9691	3.4805	3.5554	3.2709	5.1305	-2.0791
15.6686	1	17.3326	17.3763	17.2288	18.3066	18.2122	19.278	-2.0791
4.9911	1	4.8712	4.8115	4.0691	4.1935	3.8145	5.2501	-2.0586
11.8439	1	12.2917	12.5654	13.0988	13.3903	12.9848	14.712	-2.0791
6.7817	1	6.2075	6.3871	4.722	4.8712	4.5724	6.9664	-2.0586
5.6937	1	6.033	6.9664	8.5701	8.0932	7.9173	9.8562	-2.038
4.3082	1	3.5952	4.3679	2.0514	2.3168	1.796	3.4556	-2.0586
9.2046	1	9.8562	10.0285	9.9475	10.6735	10.3583	11.4491	-2.0276
8.9879	1	8.4446	9.1088	7.5066	7.6267	7.3666	8.3439	-2.0276
16.3987	1	16.7449	16.7883	16.7286	16.7016	17.1742	18.5842	-2.0276
15.3379	1	14.6539	15.3753	13.5987	13.7607	13.4685	14.9926	-2.0276
18.3229	1	18.6397	18.7011	18.6397	18.7903	19.0755	20.5513	-2.0121
10.7395	1	10.0893	10.9028	9.0081	9.2145	8.8668	10.3583	-1.9916
14.2062	1	14.4323	14.5221	14.4852	14.4748	14.8812	16.7666	-2.0121
10.7549	1	10.1857	10.8467	9.2046	9.3762	9.0431	10.2515	-1.9711
15.5083	1	15.7327	15.9096	15.7969	15.9897	16.2479	18.4505	-1.9711
13.6822	1	13.3694	13.6613	12.7257	12.8187	12.643	13.8025	-1.9916
19.6163	1	19.8886	19.9568	19.758	20.025	20.2988	22.7839	-1.956
17.1742	1	16.0759	16.8697	14.4537	14.712	14.1693	16.291	-1.9301
22.0706	1	22.545	22.545	22.2065	22.8318	22.7357	25.0838	-1.956
18.1292	1	17.2288	17.8754	15.7327	15.9524	15.4978	17.0706	-1.9146
22.8855	1	22.6942	23.0177	22.7181	22.6641	23.0177	23.1679	-1.9146
19.7068	1	19.7183	19.6841	19.4637	19.4863	19.4186	19.7183	-1.8941
24.7094	1	25.3286	25.2029	25.1277	25.2593	26.0132	26.9945	-1.8941
18.3229	1	18.412	18.2844	18.2343	18.2565	18.1901	18.6397	-1.8736
23.5309	1	24.2458	24.2458	24.1414	24.2704	25.0399	26.2503	-1.8635



8.0629	1	8.0932	8.0429	7.9476	7.9476	7.9476	8.4446	-1.8326
14.5432	1	14.5062	15.2898	15.3753	15.6952	16.0383	17.9527	-1.8326
13.834	1	13.1873	13.8917	11.8234	12.0443	11.7158	13.1196	-1.8122
22.6821	1	22.8318	23.2584	23.0657	23.4518	23.6766	25.0588	-1.7917
18.5394	1	18.0134	18.523	16.9619	17.1577	16.8804	18.1459	-1.7712
20.1618	1	19.7978	20.2074	20.1902	20.1217	20.4422	22.4023	-1.7712
12.855	1	12.8914	12.8187	12.7878	12.7878	12.7878	13.4787	-1.7507
7.8224	1	7.8224	7.8021	8.0629	7.9275	8.2488	8.4094	-1.7047
6.1278	1	6.2275	6.0879	6.2275	6.1876	6.3024	6.1876	-1.7047
10.7549	1	10.5108	10.7549	10.4905	10.4702	10.6581	9.8562	-1.7047
6.6367	1	6.6469	6.6367	6.5418	6.4921	6.5618	6.9664	-1.6792
10.9028	1	10.6581	10.7802	10.8467	10.8363	10.9435	11.8645	-1.6638
6.9415	1	6.9415	6.8816	6.8616	6.8416	6.8816	7.1014	-1.6638
12.4516	1	13.2081	14.3168	17.6171	16.291	14.9238	16.5771	-1.6229
11.8234	1	10.9793	11.7773	9.5377	9.8108	9.3104	10.0893	-1.6434
10.7802	1	10.2924	10.7956	10.5208	10.4905	10.6988	10.6174	-1.6229
10.8467	1	10.1704	10.8824	8.9275	9.1845	8.7362	9.912	-1.6024
15.8878	1	15.8664	16.1887	15.8878	15.9524	16.4366	17.683	-1.6229
10.0082	1	10.0285	9.9727	9.988	9.9475	9.988	10.0082	-1.582
8.1231	1	8.2034	8.7662	9.9727	9.5377	9.2499	9.831	-1.1938
8.2234	1	8.2836	8.1632	8.1432	8.1231	8.1632	8.3843	-1.3162
16.9185	1	18.1017	17.8754	18.8573	19.9568	18.5675	18.5394	-1.3008
8.9678	1	9.0282	8.9476	8.9879	8.9476	8.9678	9.366	-1.3162
8.52	1	8.108	8.4094	8.3843	8.3037	8.5701	8.6706	-1.3162
5.3745	1	5.4493	5.3249	5.3448	5.3099	5.285	5.6437	-1.3162
6.3223	1	6.3223	6.2075	6.6017	6.4021	6.4921	6.7215	-1.3366
5.2151	1	5.2501	5.2302	5.0757	5.1106	5.0558	5.285	-1.3366
6.6469	1	6.427	6.5817	6.462	6.3871	6.5618	6.6017	-1.357
8.2234	1	8.4446	8.3238	8.2386	8.3238	8.2234	8.5049	-1.3724
11.5364	1	11.4491	11.6953	12.1732	11.9931	11.9005	11.6543	-1.3724
11.2905	1	11.0251	11.0097	9.5732	9.8562	9.2145	10.5208	-1.3724
14.4852	1	14.4323	15.067	16.3341	15.9254	15.067	14.3061	-1.3724
9.649	1	9.6895	9.6338	8.9476	9.0685	8.7059	9.124	-1.3824
21.6475	1	21.7882	22.6821	24.1414	24.2458	22.3133	23.3851	-1.3824
16.0221	1	15.6098	15.9254	14.6909	14.86	14.4852	15.6472	-1.357
23.2885	1	23.5488	24.443	25.9685	26.2372	24.0923	25.1589	-1.4031
15.5244	1	15.6686	15.4978	15.226	15.3271	15.1094	16.4634	-1.3724
20.7353	1	21.2098	21.9999	24.2337	23.8352	23.2885	22.8557	-1.3724
15.6791	1	15.7755	15.5832	15.3965	15.5083	15.2473	15.7541	-1.3724
14.8388	1	14.5062	14.9395	15.5244	15.3753	15.4549	15.9096	-1.3824
10.4905	1	10.7802	10.5768	10.6378	10.6581	10.5564	11.168	-1.3724
18.9973	1	18.1129	18.7011	19.1767	18.8181	18.8796	18.2731	-1.3724
17.42	1	17.5076	17.3763	17.3928	17.3928	17.3763	17.2671	-1.3724
11.7978	1	11.8439	11.7773	11.9005	11.8234	11.8645	12.9328	-1.3724
11.6798	1	11.8133	11.6798	11.7363	11.6643	11.7158	10.9178	-1.3824
8.6455	1	8.5701	8.6103	8.6455	8.6103	8.7662	8.9275	-1.3724
6.4921	1	6.427	6.2824	6.0879	6.1477	6.1278	6.442	-1.357
11.2292	1	11.3368	11.8439	14.2692	12.7515	12.1732	12.0858	-1.3724
5.2151	1	5.2302	5.2302	5.1505	5.1903	5.0907	5.011	-1.3724
6.1477	1	5.9231	6.033	6.1477	6.0078	6.2824	5.8682	-1.3724
5.6839	1	5.7885	5.6839	5.6839	5.6839	5.6437	5.3249	-1.357
18.1901	1	18.2122	18.662	19.351	19.1204	18.8071	18.7456	-1.357

8.1833	1	8.2836	8.1231	8.1231	8.1432	8.0932	8.3037	-1.3724
7.3115	1	6.9016	7.0614	7.2564	7.1414	7.2866	7.2213	-1.3366
5.4095	1	5.4294	5.3948	5.3448	5.3099	5.3448	5.3249	-1.3724
7.8424	1	8.0278	8.9476	10.6835	9.8562	9.7299	10.3583	-1.357
4.2883	1	4.5623	4.348	4.4127	4.4127	4.3281	5.3099	-1.3162
10.1501	1	9.8108	10.6735	10.6174	11.0813	10.2312	12.1526	-1.3366
7.0414	1	7.2866	7.0814	7.1614	7.1414	7.1165	6.9864	-1.3162
11.9005	1	12.6274	13.2497	13.4787	13.8131	12.7257	14.3747	-1.357
7.9173	1	8.1432	7.9026	8.0028	7.9877	7.9275	7.8021	-1.3366
15.5671	1	15.845	16.291	16.8533	16.8533	16.4203	17.7215	-1.3008
7.2866	1	7.3115	7.2764	7.2764	7.2764	7.2564	7.6018	-1.3162
10.5768	1	10.4142	10.9178	11.7158	11.6798	11.5005	12.2505	-1.3162
9.7299	1	9.8562	9.6994	9.7146	9.7299	9.6338	9.2499	-1.3366
3.6351	1	3.6201	3.5952	3.69	3.675	3.7698	4.4326	-1.3366
2.0514	1	2.1764	2.0363	2.0514	2.0514	2.0363	1.9914	-1.3162
8.8064	1	8.4245	8.6857	9.0533	8.8064	9.0533	8.3037	-1.3008
6.442	1	6.5618	6.3321	6.3871	6.3871	6.3472	6.8115	-1.3008
4.1138	1	4.0691	4.0691	4.3879	4.2883	4.4127	5.3647	-1.3162
0.8317	1	0.8871	0.7915	0.8469	0.8469	0.867	0.5749	-1.3008
1.8611	1	1.7707	1.7707	1.8962	1.8962	2.0514	2.0514	-1.3008
6.8017	1	6.8616	6.7215	6.7467	6.7467	6.7618	6.2824	-1.2754
16.7286	1	17.0435	17.5787	18.5008	18.3672	17.4419	17.9527	-1.3366
10.4142	1	10.5208	10.4548	10.4905	10.4702	10.4142	10.7192	-1.3162
12.1526	1	11.1017	11.7568	11.168	11.168	11.5005	10.069	-1.3008
11.6643	1	11.7978	11.6643	11.6643	11.6643	11.6133	11.8133	-1.2754
3.9394	1	3.69	3.8145	3.7698	3.7149	3.8743	3.9394	-1.3008
1.6755	1	1.7707	1.6755	1.6755	1.6755	1.6354	1.6354	-1.26
5.3249	1	5.3249	6.0078	7.612	7.1414	6.3671	6.3321	-1.26
5.3745	1	5.3745	5.285	5.285	5.285	5.27	5.4493	-1.2754
6.442	1	6.0879	6.6367	7.0015	6.7467	6.9566	6.8416	-1.26
6.427	1	6.482	6.4021	6.3321	6.3321	6.3321	6.2425	-1.2396
12.2093	1	12.0086	12.6894	13.8131	13.3329	13.6822	12.6687	-1.26
11.434	1	11.7568	11.5005	11.6133	11.5978	11.5159	11.2088	-1.26
17.4638	1	17.6556	18.4342	19.554	19.7183	18.0575	18.7011	-1.26
14.8125	1	14.9238	14.7702	14.8125	14.8125	14.7913	14.4852	-1.2754
16.7883	1	16.642	17.9252	19.6841	19.34	18.4618	18.768	-1.2192
8.3037	1	8.3639	8.2836	8.2688	8.2688	8.2688	8.4795	-1.2396
7.6819	1	7.612	7.6819	7.8021	7.7072	7.8825	7.8825	-1.2192
4.5724	1	4.642	4.5623	4.5273	4.5074	4.5273	4.4127	-1.2396
8.882	1	8.5401	8.6857	8.7362	8.7362	8.8922	8.5401	-1.2192
3.9394	1	4.1337	4.0089	3.989	3.989	3.9544	3.7498	-1.2192
6.4921	1	6.033	6.427	6.7215	6.6469	6.8416	6.5068	-1.2396
2.1315	1	2.1764	2.1115	2.1666	2.1515	2.1764	2.3368	-1.2192
7.7072	1	7.2564	7.6267	7.3666	7.3866	7.5467	7.9026	-1.2092
6.1078	1	6.1876	6.0879	6.1078	6.0879	6.0879	6.1278	-1.1938
7.9275	1	7.6018	7.9476	7.8224	7.8424	7.8625	8.3037	-1.2092
6.7467	1	6.9664	6.7618	6.8816	6.8616	6.8115	6.427	-1.1938
13.9545	1	13.6822	14.1222	14.6435	14.4537	14.9238	14.1483	-1.2192
5.6937	1	5.8434	5.7087	5.8035	5.7486	5.7087	6.1725	-1.1784
6.1876	1	5.9829	6.2425	6.3321	6.2075	6.4921	6.1624	-1.1581
7.5818	1	7.612	7.4866	7.4066	7.4066	7.4266	7.1414	-1.1784
12.4155	1	12.643	12.9848	14.0173	14.0593	13.2497	13.7031	-1.1938

4.5623	1	4.6273	4.5273	4.6273	4.5724	4.6273	4.5874	-1.1938
5.6937	1	5.3647	5.6039	5.4294	5.4294	5.5692	5.5692	-1.1784
6.2425	1	6.427	6.2275	6.3223	6.3223	6.2674	5.9829	-1.1581
12.1064	1	11.7773	12.1064	12.0086	11.9621	12.0653	12.0086	-1.1581
8.3439	1	8.4245	8.3238	8.3238	8.3238	8.3037	8.5701	-1.1581
9.0081	1	8.726	8.9476	9.0533	8.9476	9.2902	8.7863	-1.1784
5.011	1	5.0558	4.9911	4.9911	4.9911	4.9911	5.1704	-1.1784
7.0414	1	6.7817	6.9415	7.0015	6.9415	7.0814	6.6017	-1.1938
5.7087	1	5.7636	5.6937	5.6937	5.6937	5.6937	5.998	-1.1377
8.2688	1	8.3639	9.3911	11.4491	11.1934	9.8463	10.0893	-1.1784
3.2709	1	3.3307	3.2509	3.2509	3.2359	3.2509	3.3906	-1.1581
11.6953	1	11.5569	12.0653	12.3174	12.8085	11.9416	12.9172	-1.1784
11.6338	1	11.8133	11.6133	11.6798	11.6798	11.6338	11.3723	-1.1581
15.9683	1	15.3753	15.9683	15.9096	16.2694	15.8878	15.3271	-1.1784
3.7946	1	3.8495	3.7799	3.7799	3.7799	3.7799	4.1687	-1.1581
4.5623	1	4.3082	4.4127	4.4476	4.4029	4.5724	4.6073	-1.1581
3.5952	1	3.6551	3.5952	3.5753	3.5753	3.5554	3.7946	-1.1581
12.5085	1	12.4828	13.078	13.4787	14.5854	12.7257	13.8131	-1.1581
9.0081	1	9.1491	8.9879	9.0081	9.0081	8.9678	9.1088	-1.1377
9.3762	1	9.1643	9.2701	9.2902	9.2499	9.366	9.8562	-1.1581



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DATALOGGER #: 130  
 DESCRIPTION : 2020232  
 File Type : 836 2211000 323  
 SAMPLE RATE : 12:00:00  
 PRECISION : -DOUBLE-  
 LAST RECORDING: 03/09/03  
 DATE TIME  
 MM/DD/YY HH:MM:SS

Petro Canada NUNA Drilling Sump  
 Date Installed: April 24, 2003  
 Control Sample

EBA Temperature Bead Calibration (C)			0.02	0.03	0.02
Depth of Thermistor (m)			Surface	2.5m	5m
			Temperature		
04/25/03	0:00:00	4/25/03 0:00	-1.32	-8.85	-4.00
04/25/03	12:00:00	4/25/03 12:00	-0.61	-9.63	-5.92
04/26/03	0:00:00	4/26/03 0:00	-1.28	-9.63	-6.02
04/26/03	12:00:00	4/26/03 12:00	-0.21	-9.56	-5.98
04/27/03	0:00:00	4/27/03 0:00	-0.53	-9.43	-5.93
04/27/03	12:00:00	4/27/03 12:00	-0.17	-9.30	-5.87
04/28/03	0:00:00	4/28/03 0:00	-0.21	-9.20	-5.86
04/28/03	12:00:00	4/28/03 12:00	-0.14	-9.05	-5.81
04/29/03	0:00:00	4/29/03 0:00	-0.01	-8.96	-5.77
04/29/03	12:00:00	4/29/03 12:00	-0.15	-8.84	-5.72
04/30/03	0:00:00	4/30/03 0:00	-0.22	-8.71	-5.70
04/30/03	12:00:00	4/30/03 12:00	-0.22	-8.60	-5.70
05/01/03	0:00:00	5/1/03 0:00	-0.27	-8.43	-5.67
05/01/03	12:00:00	5/1/03 12:00	-0.35	-7.84	-5.63
05/02/03	0:00:00	5/2/03 0:00	-1.28	-6.94	-5.58
05/02/03	12:00:00	5/2/03 12:00	-2.61	-6.48	-5.54
05/03/03	0:00:00	5/3/03 0:00	-2.22	-6.33	-5.52
05/03/03	12:00:00	5/3/03 12:00	-3.40	-6.20	-5.50
05/04/03	0:00:00	5/4/03 0:00	-3.33	-6.10	-5.46
05/04/03	12:00:00	5/4/03 12:00	-4.47	-6.10	-5.41
05/05/03	0:00:00	5/5/03 0:00	-3.94	-6.01	-5.36
05/05/03	12:00:00	5/5/03 12:00	-5.92	-6.03	-5.35
05/06/03	0:00:00	5/6/03 0:00	-2.88	-5.62	-5.33
05/06/03	12:00:00	5/6/03 12:00	-1.24	-3.49	-5.29
05/07/03	0:00:00	5/7/03 0:00	-2.67	-2.52	-5.24
05/07/03	12:00:00	5/7/03 12:00	-4.90	-2.39	-5.21
05/08/03	0:00:00	5/8/03 0:00	-4.31	-2.54	-5.19
05/08/03	12:00:00	5/8/03 12:00	-5.01	-2.80	-5.17
05/09/03	0:00:00	5/9/03 0:00	-2.63	-2.99	-5.16
05/09/03	12:00:00	5/9/03 12:00	-1.35	-2.54	-5.14
05/10/03	0:00:00	5/10/03 0:00	-1.26	-1.96	-5.10
05/10/03	12:00:00	5/10/03 12:00	-0.71	-1.67	-5.06
05/11/03	0:00:00	5/11/03 0:00	-3.94	-1.52	-5.04
05/11/03	12:00:00	5/11/03 12:00	-3.31	-1.45	-5.02
05/12/03	0:00:00	5/12/03 0:00	-2.20	-1.45	-5.01
05/12/03	12:00:00	5/12/03 12:00	-3.61	-1.45	-4.99
05/13/03	0:00:00	5/13/03 0:00	-2.67	-1.52	-4.99
05/13/03	12:00:00	5/13/03 12:00	-2.92	-1.55	-4.95
05/14/03	0:00:00	5/14/03 0:00	-2.69	-1.63	-4.93
05/14/03	12:00:00	5/14/03 12:00	-3.03	-1.67	-4.89

05/15/03	0:00:00	5/15/03 0:00	-3.90	-1.67	-4.87
05/15/03	12:00:00	5/15/03 12:00	-3.92	-1.78	-4.87
05/16/03	0:00:00	5/16/03 0:00	-3.79	-1.76	-4.80
05/16/03	12:00:00	5/16/03 12:00	-4.09	-1.83	-4.74
05/17/03	0:00:00	5/17/03 0:00	-2.65	-1.84	-4.70
05/17/03	12:00:00	5/17/03 12:00	-1.01	-1.88	-4.68
05/18/03	0:00:00	5/18/03 0:00	-1.12	-1.93	-4.68
05/18/03	12:00:00	5/18/03 12:00	-0.38	-1.90	-4.67
05/19/03	0:00:00	5/19/03 0:00	0.02	-1.93	-4.67
05/19/03	12:00:00	5/19/03 12:00	0.59	-1.94	-4.63
05/20/03	0:00:00	5/20/03 0:00	2.92	-1.96	-4.61
05/20/03	12:00:00	5/20/03 12:00	0.11	-1.96	-4.57
05/21/03	0:00:00	5/21/03 0:00	1.29	-1.98	-4.67
05/21/03	12:00:00	5/21/03 12:00	0.44	-1.98	-4.63
05/22/03	0:00:00	5/22/03 0:00	1.60	-2.00	-4.59
05/22/03	12:00:00	5/22/03 12:00	-0.17	-2.00	-4.57
05/23/03	0:00:00	5/23/03 0:00	0.01	-2.00	-4.51
05/23/03	12:00:00	5/23/03 12:00	-0.14	-2.01	-4.50
05/24/03	0:00:00	5/24/03 0:00	-0.14	-2.00	-4.44
05/24/03	12:00:00	5/24/03 12:00	-0.51	-2.01	-4.44
05/25/03	0:00:00	5/25/03 0:00	-1.48	-2.03	-4.43
05/25/03	12:00:00	5/25/03 12:00	-2.61	-2.01	-4.40
05/26/03	0:00:00	5/26/03 0:00	-0.81	-2.06	-4.43
05/26/03	12:00:00	5/26/03 12:00	-0.34	-2.05	-4.39
05/27/03	0:00:00	5/27/03 0:00	-0.49	-2.06	-4.39
05/27/03	12:00:00	5/27/03 12:00	-0.14	-2.09	-4.37
05/28/03	0:00:00	5/28/03 0:00	3.06	-2.09	-4.39
05/28/03	12:00:00	5/28/03 12:00	4.13	-2.09	-4.33
05/29/03	0:00:00	5/29/03 0:00	8.50	-2.13	-4.34
05/29/03	12:00:00	5/29/03 12:00	1.02	-2.11	-4.37
05/30/03	0:00:00	5/30/03 0:00	4.10	-2.09	-4.40
05/30/03	12:00:00	5/30/03 12:00	0.73	-2.11	-4.43
05/31/03	0:00:00	5/31/03 0:00	3.22	-2.15	-4.44
05/31/03	12:00:00	5/31/03 12:00	-0.10	-2.13	-4.43
06/01/03	0:00:00	6/1/03 0:00	1.68	-2.15	-4.43
06/01/03	12:00:00	6/1/03 12:00	1.72	-2.13	-4.43
06/02/03	0:00:00	6/2/03 0:00	11.05	-2.11	-4.40
06/02/03	12:00:00	6/2/03 12:00	8.54	-2.09	-4.39
06/03/03	0:00:00	6/3/03 0:00	10.07	-2.13	-4.39
06/03/03	12:00:00	6/3/03 12:00	1.58	-2.11	-4.34
06/04/03	0:00:00	6/4/03 0:00	8.90	-2.13	-4.33
06/04/03	12:00:00	6/4/03 12:00	6.32	-2.13	-4.33
06/05/03	0:00:00	6/5/03 0:00	11.49	-2.15	-4.33
06/05/03	12:00:00	6/5/03 12:00	3.75	-2.11	-4.29
06/06/03	0:00:00	6/6/03 0:00	11.58	-2.15	-4.31
06/06/03	12:00:00	6/6/03 12:00	1.68	-2.15	-4.27
06/07/03	0:00:00	6/7/03 0:00	4.49	-2.15	-4.26
06/07/03	12:00:00	6/7/03 12:00	1.82	-2.15	-4.23
06/08/03	0:00:00	6/8/03 0:00	12.16	-2.15	-4.21
06/08/03	12:00:00	6/8/03 12:00	8.16	-2.13	-4.19
06/09/03	0:00:00	6/9/03 0:00	11.16	-2.13	-4.17
06/09/03	12:00:00	6/9/03 12:00	5.01	-2.13	-4.19

06/10/03	0:00:00	6/10/03 0:00	10.87	-2.15	-4.17
06/10/03	12:00:00	6/10/03 12:00	0.94	-2.15	-4.17
06/11/03	0:00:00	6/11/03 0:00	6.86	-2.13	-4.15
06/11/03	12:00:00	6/11/03 12:00	-0.17	-2.15	-4.16
06/12/03	0:00:00	6/12/03 0:00	1.88	-2.13	-4.13
06/12/03	12:00:00	6/12/03 12:00	-0.65	-2.13	-4.13
06/13/03	0:00:00	6/13/03 0:00	5.10	-2.11	-4.11
06/13/03	12:00:00	6/13/03 12:00	-0.39	-2.13	-4.11
06/14/03	0:00:00	6/14/03 0:00	2.50	-2.09	-4.09
06/14/03	12:00:00	6/14/03 12:00	1.53	-2.11	-4.09
06/15/03	0:00:00	6/15/03 0:00	13.91	-2.13	-4.11
06/15/03	12:00:00	6/15/03 12:00	5.25	-2.11	-4.09
06/16/03	0:00:00	6/16/03 0:00	6.23	-2.09	-4.07
06/16/03	12:00:00	6/16/03 12:00	3.04	-2.13	-4.07
06/17/03	0:00:00	6/17/03 0:00	7.20	-2.09	-4.07
06/17/03	12:00:00	6/17/03 12:00	1.10	-2.11	-4.05
06/18/03	0:00:00	6/18/03 0:00	9.88	-2.09	-4.05
06/18/03	12:00:00	6/18/03 12:00	0.63	-2.09	-4.02
06/19/03	0:00:00	6/19/03 0:00	7.70	-2.09	-4.02
06/19/03	12:00:00	6/19/03 12:00	3.63	-2.09	-4.02
06/20/03	0:00:00	6/20/03 0:00	8.58	-2.06	-4.02
06/20/03	12:00:00	6/20/03 12:00	1.43	-2.06	-4.00
06/21/03	0:00:00	6/21/03 0:00	11.92	-2.05	-4.00
06/21/03	12:00:00	6/21/03 12:00	5.15	-2.05	-4.01
06/22/03	0:00:00	6/22/03 0:00	19.30	-2.05	-4.00
06/22/03	12:00:00	6/22/03 12:00	5.27	-2.03	-4.00
06/23/03	0:00:00	6/23/03 0:00	14.73	-2.05	-4.00
06/23/03	12:00:00	6/23/03 12:00	6.99	-2.03	-4.00
06/24/03	0:00:00	6/24/03 0:00	9.88	-2.01	-3.98
06/24/03	12:00:00	6/24/03 12:00	3.48	-2.03	-4.00
06/25/03	0:00:00	6/25/03 0:00	11.47	-2.00	-3.98
06/25/03	12:00:00	6/25/03 12:00	8.36	-2.00	-3.98
06/26/03	0:00:00	6/26/03 0:00	18.60	-2.00	-3.96
06/26/03	12:00:00	6/26/03 12:00	15.01	-2.00	-3.98
06/27/03	0:00:00	6/27/03 0:00	20.57	-1.98	-3.94
06/27/03	12:00:00	6/27/03 12:00	10.38	-1.96	-3.94
06/28/03	0:00:00	6/28/03 0:00	16.79	-1.98	-3.96
06/28/03	12:00:00	6/28/03 12:00	10.27	-1.94	-3.92
06/29/03	0:00:00	6/29/03 0:00	18.47	-1.94	-3.92
06/29/03	12:00:00	6/29/03 12:00	13.82	-1.96	-3.96
06/30/03	0:00:00	6/30/03 0:00	22.80	-1.93	-3.90
06/30/03	12:00:00	6/30/03 12:00	16.31	-1.90	-3.90
07/01/03	0:00:00	7/1/03 0:00	25.10	-1.93	-3.92
07/01/03	12:00:00	7/1/03 12:00	17.09	-1.88	-3.88
07/02/03	0:00:00	7/2/03 0:00	23.19	-1.88	-3.90
07/02/03	12:00:00	7/2/03 12:00	19.74	-1.86	-3.90
07/03/03	0:00:00	7/3/03 0:00	27.01	-1.86	-3.88
07/03/03	12:00:00	7/3/03 12:00	18.66	-1.84	-3.88
07/04/03	0:00:00	7/4/03 0:00	26.27	-1.83	-3.88
07/04/03	12:00:00	7/4/03 12:00	8.46	-1.80	-3.88
07/05/03	0:00:00	7/5/03 0:00	17.97	-1.80	-3.88
07/05/03	12:00:00	7/5/03 12:00	13.14	-1.78	-3.86

07/06/03	0:00:00	7/6/03 0:00	25.08	-1.76	-3.84
07/06/03	12:00:00	7/6/03 12:00	18.17	-1.74	-3.84
07/07/03	0:00:00	7/7/03 0:00	22.42	-1.74	-3.84
07/07/03	12:00:00	7/7/03 12:00	13.50	-1.72	-3.86
07/08/03	0:00:00	7/8/03 0:00	8.43	-1.67	-3.83
07/08/03	12:00:00	7/8/03 12:00	6.21	-1.67	-3.83
07/09/03	0:00:00	7/9/03 0:00	9.88	-1.67	-3.83
07/09/03	12:00:00	7/9/03 12:00	6.99	-1.65	-3.82
07/10/03	0:00:00	7/10/03 0:00	11.88	-1.63	-3.79
07/10/03	12:00:00	7/10/03 12:00	7.12	-1.63	-3.82
07/11/03	0:00:00	7/11/03 0:00	16.60	-1.59	-3.79
07/11/03	12:00:00	7/11/03 12:00	10.11	-1.61	-3.79
07/12/03	0:00:00	7/12/03 0:00	10.64	-1.59	-3.79
07/12/03	12:00:00	7/12/03 12:00	9.93	-1.57	-3.77
07/13/03	0:00:00	7/13/03 0:00	17.70	-1.59	-3.79
07/13/03	12:00:00	7/13/03 12:00	10.03	-1.55	-3.79
07/14/03	0:00:00	7/14/03 0:00	9.85	-1.16	-3.76
07/14/03	12:00:00	7/14/03 12:00	8.40	-1.29	-3.73
07/15/03	0:00:00	7/15/03 0:00	18.56	-1.27	-3.73
07/15/03	12:00:00	7/15/03 12:00	9.39	-1.29	-3.73
07/16/03	0:00:00	7/16/03 0:00	8.69	-1.29	-3.73
07/16/03	12:00:00	7/16/03 12:00	5.66	-1.29	-3.72
07/17/03	0:00:00	7/17/03 0:00	6.74	-1.31	-3.70
07/17/03	12:00:00	7/17/03 12:00	5.31	-1.31	-3.72
07/18/03	0:00:00	7/18/03 0:00	6.62	-1.33	-3.72
07/18/03	12:00:00	7/18/03 12:00	8.52	-1.34	-3.72
07/19/03	0:00:00	7/19/03 0:00	11.67	-1.34	-3.72
07/19/03	12:00:00	7/19/03 12:00	10.54	-1.34	-3.70
07/20/03	0:00:00	7/20/03 0:00	14.33	-1.34	-3.70
07/20/03	12:00:00	7/20/03 12:00	9.14	-1.35	-3.70
07/21/03	0:00:00	7/21/03 0:00	23.41	-1.35	-3.67
07/21/03	12:00:00	7/21/03 12:00	15.67	-1.33	-3.66
07/22/03	0:00:00	7/22/03 0:00	25.18	-1.37	-3.70
07/22/03	12:00:00	7/22/03 12:00	16.48	-1.34	-3.66
07/23/03	0:00:00	7/23/03 0:00	22.88	-1.34	-3.66
07/23/03	12:00:00	7/23/03 12:00	15.77	-1.34	-3.66
07/24/03	0:00:00	7/24/03 0:00	15.93	-1.35	-3.66
07/24/03	12:00:00	7/24/03 12:00	11.19	-1.34	-3.66
07/25/03	0:00:00	7/25/03 0:00	18.29	-1.34	-3.64
07/25/03	12:00:00	7/25/03 12:00	17.29	-1.34	-3.64
07/26/03	0:00:00	7/26/03 0:00	12.95	-1.34	-3.64
07/26/03	12:00:00	7/26/03 12:00	10.94	-1.35	-3.66
07/27/03	0:00:00	7/27/03 0:00	8.95	-1.34	-3.63
07/27/03	12:00:00	7/27/03 12:00	6.46	-1.33	-3.61
07/28/03	0:00:00	7/28/03 0:00	12.11	-1.34	-3.64
07/28/03	12:00:00	7/28/03 12:00	5.03	-1.34	-3.63
07/29/03	0:00:00	7/29/03 0:00	5.89	-1.34	-3.61
07/29/03	12:00:00	7/29/03 12:00	5.34	-1.33	-3.59
07/30/03	0:00:00	7/30/03 0:00	18.77	-1.33	-3.59
07/30/03	12:00:00	7/30/03 12:00	8.32	-1.34	-3.61
07/31/03	0:00:00	7/31/03 0:00	7.24	-1.31	-3.56
07/31/03	12:00:00	7/31/03 12:00	5.34	-1.34	-3.59

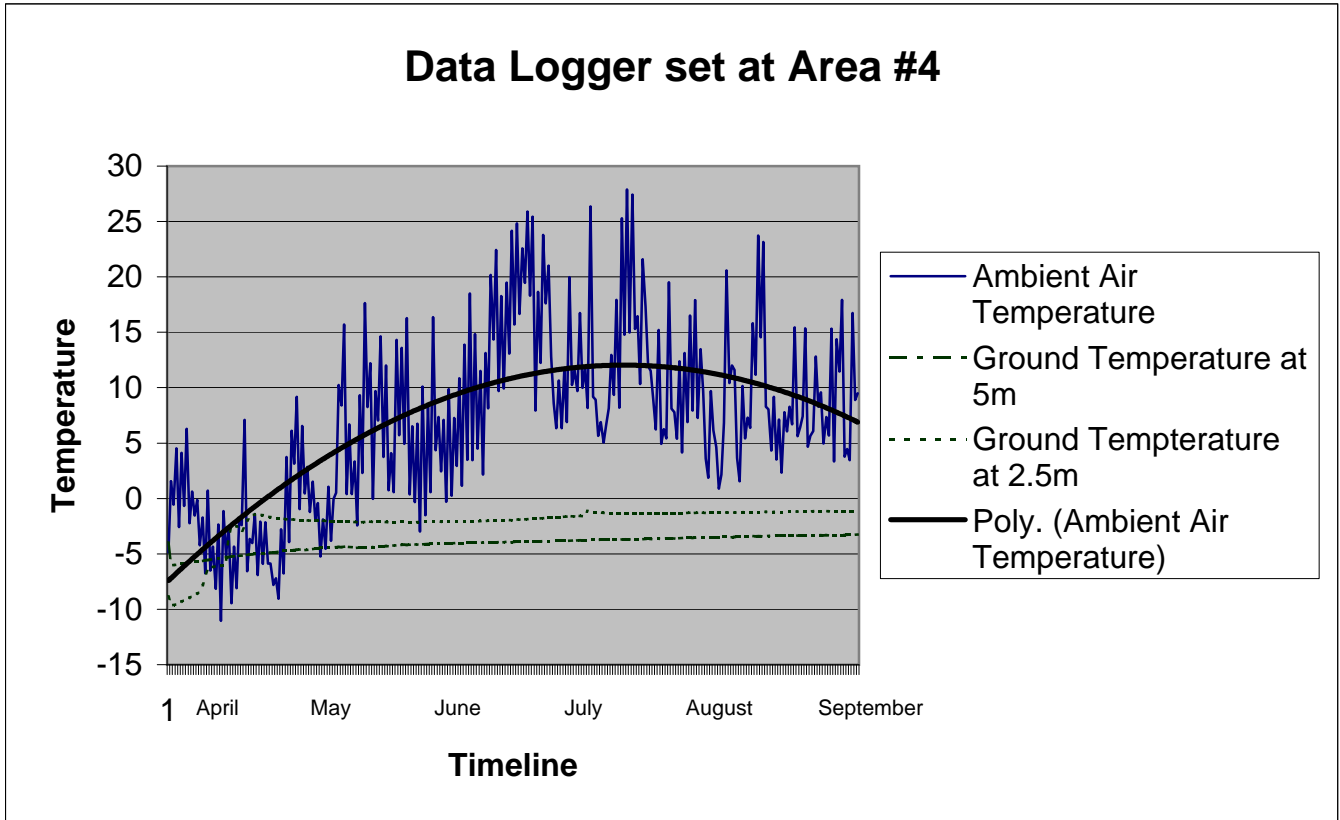
08/01/03	0:00:00	8/1/03 0:00	10.38	-1.33	-3.56
08/01/03	12:00:00	8/1/03 12:00	5.33	-1.29	-3.54
08/02/03	0:00:00	8/2/03 0:00	12.17	-1.31	-3.54
08/02/03	12:00:00	8/2/03 12:00	7.01	-1.29	-3.52
08/03/03	0:00:00	8/3/03 0:00	14.39	-1.33	-3.56
08/03/03	12:00:00	8/3/03 12:00	7.82	-1.31	-3.54
08/04/03	0:00:00	8/4/03 0:00	17.74	-1.27	-3.51
08/04/03	12:00:00	8/4/03 12:00	7.62	-1.29	-3.51
08/05/03	0:00:00	8/5/03 0:00	12.27	-1.29	-3.51
08/05/03	12:00:00	8/5/03 12:00	9.27	-1.31	-3.52
08/06/03	0:00:00	8/6/03 0:00	4.45	-1.31	-3.51
08/06/03	12:00:00	8/6/03 12:00	2.01	-1.29	-3.50
08/07/03	0:00:00	8/7/03 0:00	8.32	-1.27	-3.50
08/07/03	12:00:00	8/7/03 12:00	6.83	-1.27	-3.50
08/08/03	0:00:00	8/8/03 0:00	5.38	-1.29	-3.50
08/08/03	12:00:00	8/8/03 12:00	0.59	-1.27	-3.48
08/09/03	0:00:00	8/9/03 0:00	2.07	-1.27	-3.48
08/09/03	12:00:00	8/9/03 12:00	6.30	-1.25	-3.48
08/10/03	0:00:00	8/10/03 0:00	17.97	-1.31	-3.51
08/10/03	12:00:00	8/10/03 12:00	10.74	-1.29	-3.50
08/11/03	0:00:00	8/11/03 0:00	10.09	-1.27	-3.48
08/11/03	12:00:00	8/11/03 12:00	11.83	-1.25	-3.46
08/12/03	0:00:00	8/12/03 0:00	3.96	-1.27	-3.46
08/12/03	12:00:00	8/12/03 12:00	1.66	-1.23	-3.42
08/13/03	0:00:00	8/13/03 0:00	6.35	-1.23	-3.44
08/13/03	12:00:00	8/13/03 12:00	5.47	-1.25	-3.44
08/14/03	0:00:00	8/14/03 0:00	6.86	-1.23	-3.42
08/14/03	12:00:00	8/14/03 12:00	6.26	-1.21	-3.40
08/15/03	0:00:00	8/15/03 0:00	12.69	-1.23	-3.42
08/15/03	12:00:00	8/15/03 12:00	11.23	-1.23	-3.40
08/16/03	0:00:00	8/16/03 0:00	18.72	-1.23	-3.40
08/16/03	12:00:00	8/16/03 12:00	14.51	-1.25	-3.42
08/17/03	0:00:00	8/17/03 0:00	18.79	-1.19	-3.38
08/17/03	12:00:00	8/17/03 12:00	8.50	-1.21	-3.38
08/18/03	0:00:00	8/18/03 0:00	7.90	-1.19	-3.36
08/18/03	12:00:00	8/18/03 12:00	4.43	-1.21	-3.36
08/19/03	0:00:00	8/19/03 0:00	8.56	-1.19	-3.36
08/19/03	12:00:00	8/19/03 12:00	3.77	-1.19	-3.34
08/20/03	0:00:00	8/20/03 0:00	6.53	-1.21	-3.36
08/20/03	12:00:00	8/20/03 12:00	2.36	-1.19	-3.36
08/21/03	0:00:00	8/21/03 0:00	7.92	-1.18	-3.34
08/21/03	12:00:00	8/21/03 12:00	6.15	-1.16	-3.33
08/22/03	0:00:00	8/22/03 0:00	8.32	-1.18	-3.34
08/22/03	12:00:00	8/22/03 12:00	6.45	-1.16	-3.34
08/23/03	0:00:00	8/23/03 0:00	14.17	-1.19	-3.36
08/23/03	12:00:00	8/23/03 12:00	6.19	-1.15	-3.33
08/24/03	0:00:00	8/24/03 0:00	6.18	-1.13	-3.33
08/24/03	12:00:00	8/24/03 12:00	7.16	-1.15	-3.33
08/25/03	0:00:00	8/25/03 0:00	13.72	-1.16	-3.33
08/25/03	12:00:00	8/25/03 12:00	4.61	-1.16	-3.33
08/26/03	0:00:00	8/26/03 0:00	5.59	-1.15	-3.33
08/26/03	12:00:00	8/26/03 12:00	6.00	-1.13	-3.31

08/27/03	0:00:00	8/27/03 0:00	12.03	-1.13	-3.31
08/27/03	12:00:00	8/27/03 12:00	8.59	-1.13	-3.31
08/28/03	0:00:00	8/28/03 0:00	8.81	-1.15	-3.33
08/28/03	12:00:00	8/28/03 12:00	5.19	-1.15	-3.31
08/29/03	0:00:00	8/29/03 0:00	6.62	-1.16	-3.33
08/29/03	12:00:00	8/29/03 12:00	6.02	-1.11	-3.29
08/30/03	0:00:00	8/30/03 0:00	10.11	-1.15	-3.31
08/30/03	12:00:00	8/30/03 12:00	3.41	-1.13	-3.29
08/31/03	0:00:00	8/31/03 0:00	12.94	-1.15	-3.31
08/31/03	12:00:00	8/31/03 12:00	11.39	-1.13	-3.29
09/01/03	0:00:00	9/1/03 0:00	15.35	-1.15	-3.29
09/01/03	12:00:00	9/1/03 12:00	4.19	-1.13	-3.27
09/02/03	0:00:00	9/2/03 0:00	4.63	-1.13	-3.27
09/02/03	12:00:00	9/2/03 12:00	3.81	-1.13	-3.26
09/03/03	0:00:00	9/3/03 0:00	13.83	-1.13	-3.27
09/03/03	12:00:00	9/3/03 12:00	9.13	-1.11	-3.26



# Petro Canada I-30

## Off-Site Control Temperature Recordings



## **Petro Canada Nuna I-30**

### **Downloading of Temperature Information and Site Investigation**

#### **Overview:**

On April 23, 2003, four auger holes were drilled in and around the buried sump area. Each auger hole was designated area #1 to area #4. Area #4 was designated the control area (just off the East perimeter of the site), while area #1 through #3 are within the buried sump boundaries. Core #1 was drilled to a depth of 6m. Core #2 - 7m, core #3 - 7m, core #4 - 5m. In each of the 4 holes, temperature probes or 'Thermistors' were inserted and hooked up to a data logger which was set up to record temperatures twice a day. On September 3 these recordings were downloaded and a site investigation was conducted. The site was assessed for vegetation re-growth, contour, stability, and erosion.

#### **Results:**

The drilling waste disposed in this particular sump had salinity levels indicative of material that would freeze solid at an average temperature of -3 to -4 degrees Celsius. (See Petro Canada Nuna I-30 sampling report - April 16, 2003). Our results showed that the permafrost temperature at 5m ranged from -4 to -5 degrees throughout the summer months. The temperature recordings from area #3, & #4 for the core material within the sump boundaries all ranged from -5 to -6 degrees.

Temperature recordings from Area #2 were not available. At the time of installation, a battery pack wire was pinched by the lid and discharged the battery to the case. The problem will be rectified and temperature data should be available on the next download.. A probe failure was also seen at Area #3 for the 7m depth. This data was to represent the bottom temperature of the sump core. There is no fix for this failure. Overall, the results we do have, would indicate that the material buried within the boundaries of the sump has stayed in a frozen solid state over the summer months.

**Table 1. Total Waste Analytical Results (April 16<sup>th</sup> Report)**

<b>Parameter</b>	<b>Total Waste Composite (March 18, 2003)</b>	<b>Monthly Sample (April 12, 2003)</b>	<b>Total Waste Composite (April 16, 2003)</b>	<b>Surface Sample</b>
Density (kg/m <sup>3</sup> )	1449	1270	1510	1264
Total Sodium (mg/l)	6580	3740	1960	
Total Sulphur (ug/g)	959	730	150	
Total Calcium (mg/l)	1390	786	368	
Reactive Chlorine (mg/l)	<0.1	<0.1	0.2	
Chlorides (mg/l)	50700	58100	10400	
Potassium (mg/l)	91700		7960	
pH	11.8		10.1	
EC (dS/m)			32.2	
Extractable Hydrocarbons (mg/kg)	1070		190	240
Volatile Hydrocarbons (mg/kg)			4	6
Cadmium (ug/g)	1.1		0.52	
Chromium (ug/g)	34.9		24.2	
Copper (ug/g)	61.6		35.9	
Iron (ug/g)			20800	
Lead (ug/g)	16		8.76	
Nickel (ug/g)	39.6		25.4	
Vanadium (ug/g)	43.5		34.8	
Zinc (ug/g)	123		67.6	
Microtox (EC50 @ 15 min.)	>91 (Pass)			
Microtox Charcoal (EC50 @ 15min.)				
96 Hour Trout Bioassay (LC 50)	52 (Fail)			

**Table 2. PROPERTIES OF POTASSIUM CHLORIDE SOLUTIONS (KCl)**

<b>% KCl</b>	<b>Density (kg/m<sup>3</sup>)</b>	<b>KCl (kg/m<sup>3</sup>)</b>	<b>KCl (mg/L)</b>	<b>K<sup>+</sup> (mg/L)</b>	<b>Cl<sup>-</sup> (mg/L)</b>	<b>Final Volume Factor</b>	<b>Freezin g Point (° C)</b>
1	1006	11.4	10050	5271	4779	1.004	<b>0</b>
2	1013	20.0	20220	10605	9615	1.008	<b>-1</b>
4	1026	39.9	40960	21482	19478	1.016	<b>-2</b>
<b>6</b>	<b>1039</b>	<b>62.8</b>	<b>62210</b>	<b>32627</b>	<b>29583</b>	<b>1.024</b>	<b>-3</b>
<b>8</b>	<b>1052</b>	<b>82.8</b>	<b>84000</b>	<b>44056</b>	<b>39945</b>	<b>1.033</b>	<b>-4</b>
10	1065	105.6	106300	55752	50548	1.043	-5
12	1079	128.4	129200	67762	61439	1.053	<b>-6</b>
14	1093	154.1	152700	80087	72613	1.064	<b>-7</b>
16	1106	176.9	176700	92674	84026	1.076	<b>-8</b>
18	1120	202.6	201300	105576	95724	1.088	<b>-9</b>
20	1135	225.4	226600	118845	107755	1.102	<b>-10</b>
22	1149	251.1	252400	132376	120024	1.115	<b>-11</b>
24	1160	279.6	279000	146327	132673	1.028	<b>-12</b>

*Properties based on 20 °C and 100% purity*

### **Mud System**

A detailed list of the additives will be provided along with the toxicity results in a supplemental report.

### **Summary:**

The interim chemistry of this waste and its frozen state show no concerns for on-site freeze down and burial. Hydrocarbon levels are very low and although the salt levels are elevated, they are well below concentrations that will create 'freeze down' difficulties, as indicated by the field assessment. Freeze point depression data for KCL systems indicates that the average waste will freeze down at -3 to -4 degrees Celsius.



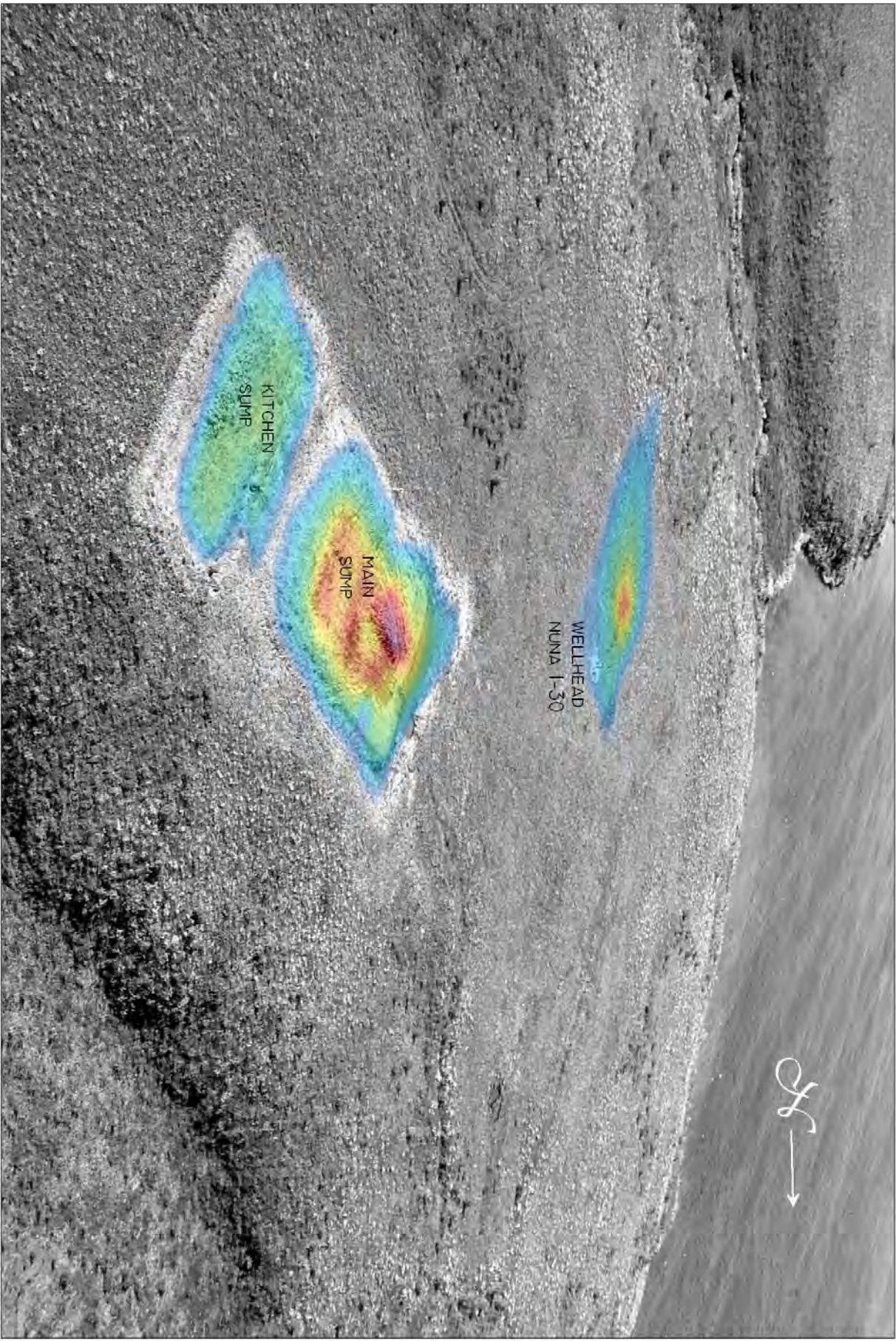
# Newpark Environmental Services

## Arctic Assessment Review

SITE INFORMATION			
Operator: Petro Canada		Well Name: Nuna I-30	
Date: September 03 2003		Bottom Hole:	
Supervisor: Gord Laptos		Surface Hole:	
SURFACE GROUND CONDITIONS			
<input checked="" type="checkbox"/> Wet		<input type="checkbox"/> Dry	<input type="checkbox"/> Frozen
LANDSCAPE CRITERIA (CONSISTENT WITH OFF-SITE?)			
Parameter	Capped Sump	Lease Site	Explain All <b>NO</b> Answers:
1) Drainage	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>Explain Any Debris:</p> <p>Clay and native soils elevated on surface. Recently capped sump as of April 2003</p>
2) Erosion	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3) Contour	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4) Stability	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5) Debris	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6) Gravel	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7) Rock	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
VEGETATION CRITERIA (CONSISTENT WITH OFF-SITE?)			
Parameter	Capped Sump	Lease Site	Explain All <b>NO</b> Answers:
1) Species	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<p>Recent well site, area is an elevated clay base virtually no vegetation has matured on the site.</p>
2) Health	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3) Density	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4) Height	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5) Cover	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6) Bare Areas	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
VEGETATION TYPE			
Parameter	Capped Sump	Lease Site	Comments:
1) Cereal	<input type="checkbox"/>	<input type="checkbox"/>	<p>Surrounding area has a good cover of natural vegetation comprised mostly of moss and native grass.</p>
2) Oil Seed	<input type="checkbox"/>	<input type="checkbox"/>	
3) Forage	<input type="checkbox"/>	<input type="checkbox"/>	
4) Pasture	<input type="checkbox"/>	<input type="checkbox"/>	
5) Trees/Bush	<input type="checkbox"/>	<input type="checkbox"/>	
6) Lentil	<input type="checkbox"/>	<input type="checkbox"/>	
7) Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	





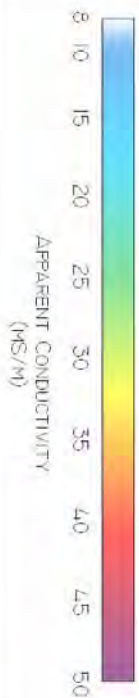


**COMMENTS:**  
 THE OVERLAY ILLUSTRATES THE CORRELATION OF EM RESPONSES TO REGIONAL FEATURES. THE PROCESS OF MERGING EM DATA WITH THE AERIAL PHOTOGRAPH GENERATES FOCAL AND PERSPECTIVE DISTORTION.

**TECHNICAL SUMMARY:**  
 GEOPHYSICAL INSTRUMENT: GEONICS EM38  
 MEASURED QUANTITIES: QUADRATURE IN MS/M

**AERIAL PHOTOGRAPH & EM38 OVERLAY**

NUNA 1-30



DATE: SEPTEMBER 3, 2003

JOB NUMBER: 0346 01

PRODUCED BY:



AERIAL PHOTOGRAPH #1

SCALE: VARIABLE, NON-LINEAR

CLIENT:





