Upper Peninsula Power Company
(a subsidiary of WPS Resources Corporation)
700 N. Adams Street
P.O. Box 19001
Green Bay, WI 54307-9001

ORIGINAL

February 23, 2004

FERC Project No. 2506-008

Ms. Magalie Roman Salas, Secretary
Federal Energy Regulatory Commission
Mail Code: DTCA, HL 21.3
888 First Street, N.E.
Washington, DC 20426

Dear Secretary Salas:

Escanaba River Hydroelectric Project Flow Evaluation Monitoring

As per the Order Approving Flow Augmentation Plan for the Escanaba River Hydroelectric Project (FERC Project No. 2506-008) dated January 15, 1997, Upper Peninsula Power Company (UPPCO) is required to evaluate the effectiveness of the Flow Augmentation Plan, as described in Article 408 of the Order.

The purpose of the Augmentation Plan is to enhance the thermal regime of the Escanaba River downstream of Boney Falls to protect the brown trout present in the river from thermal stress. To address this, the objective of the augmentation plan is to maintain the water temperature in the Escanaba River between the Boney Falls dam and the USGS monitoring station in Cornell, Michigan (Station I.D. No. 04059000) at or below 26°C.

UPPCO has been consulting with the Michigan Department of Natural Resources (MDNR), U.S. Fish and Wildlife Service (FWS), and the Escanaba River Association (ERA) about the necessity of the requirement for temperature monitoring to evaluate flow augmentation as required by Article 408. The initial data provided to the agencies to date regarding the past three augmentation periods is inconclusive. Based upon consultation with the MDNR, UPPCO proposes to continue the augmentation program to help mitigate temperature extremes downstream of Escanaba River Dam No. 4.

A copy of the Flow Augmentation Effectiveness Data provided to the consulting agencies is included in Appendix A. Comments were received from MDNR in support of continuing the Augmentation Plan, with no additional effectiveness monitoring. The ERA has provided verbal comments in support of continuing the Augmentation Plan. The FWS did not respond with comments. Documentation of Agency Consultation is included in Appendix B. A written response to agency comments and recommendations is also included in Appendix B.

Since UPPCO agrees to continue the Augmentation Plan, UPPCO respectfully requests a release from the requirement to evaluate the effectiveness of the Augmentation Plan as described in the Order. Consistent with the annual reporting requirement of the Order, UPPCO will no longer provide annual augmentation reports to the MDNR and the Commission.

Should you have any questions regarding this material, please feel free to contact Shawn Puzen at (920) 433-1094 or Mark Metcalf at (920) 433-1833. Thank you.

Sincerely,

Terry P. Jensky
Assistant Vice President - Energy Supply Operations
for Wisconsin Public Service Corporation
Telephone: (920) 433-2277

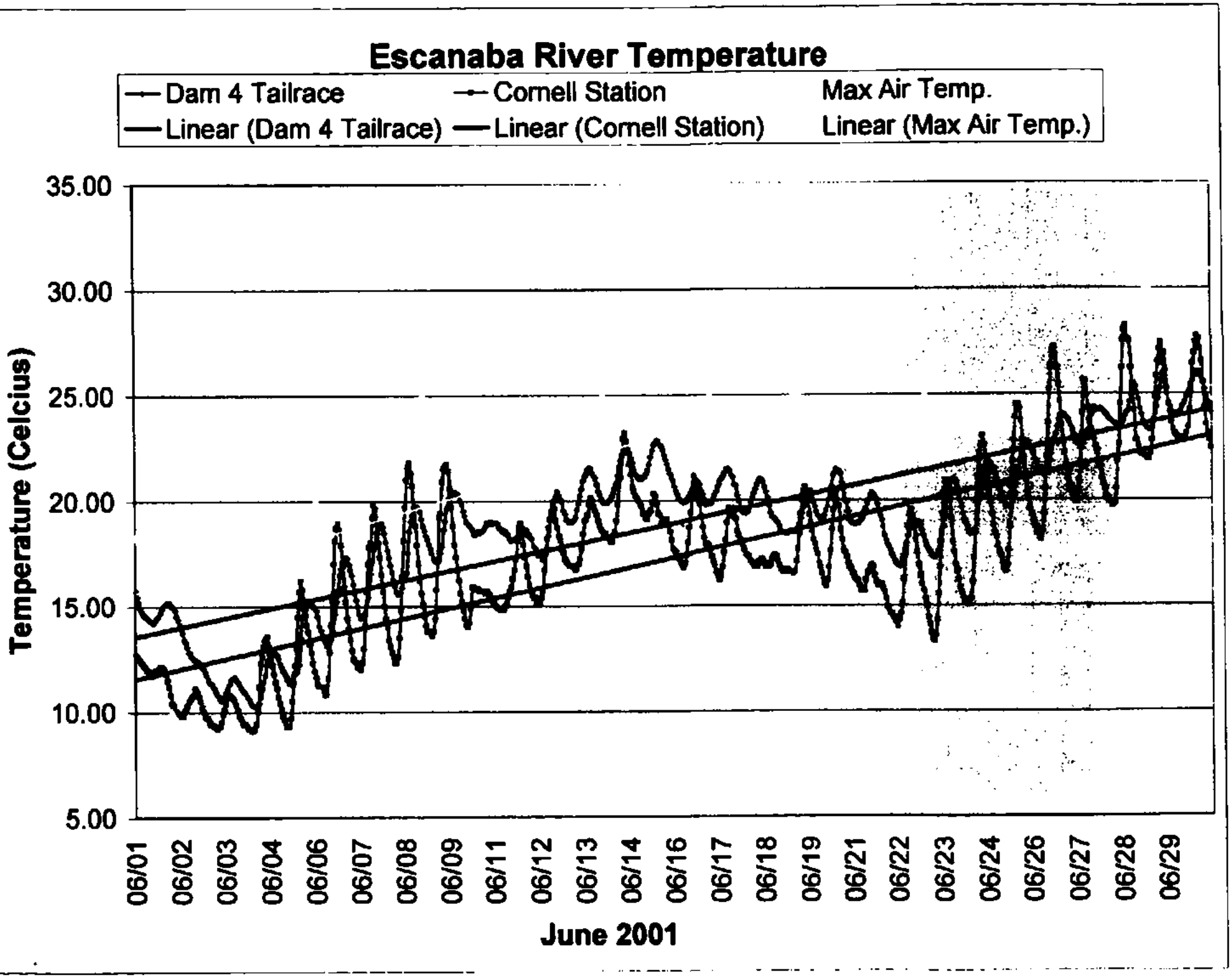
vav

Enc.

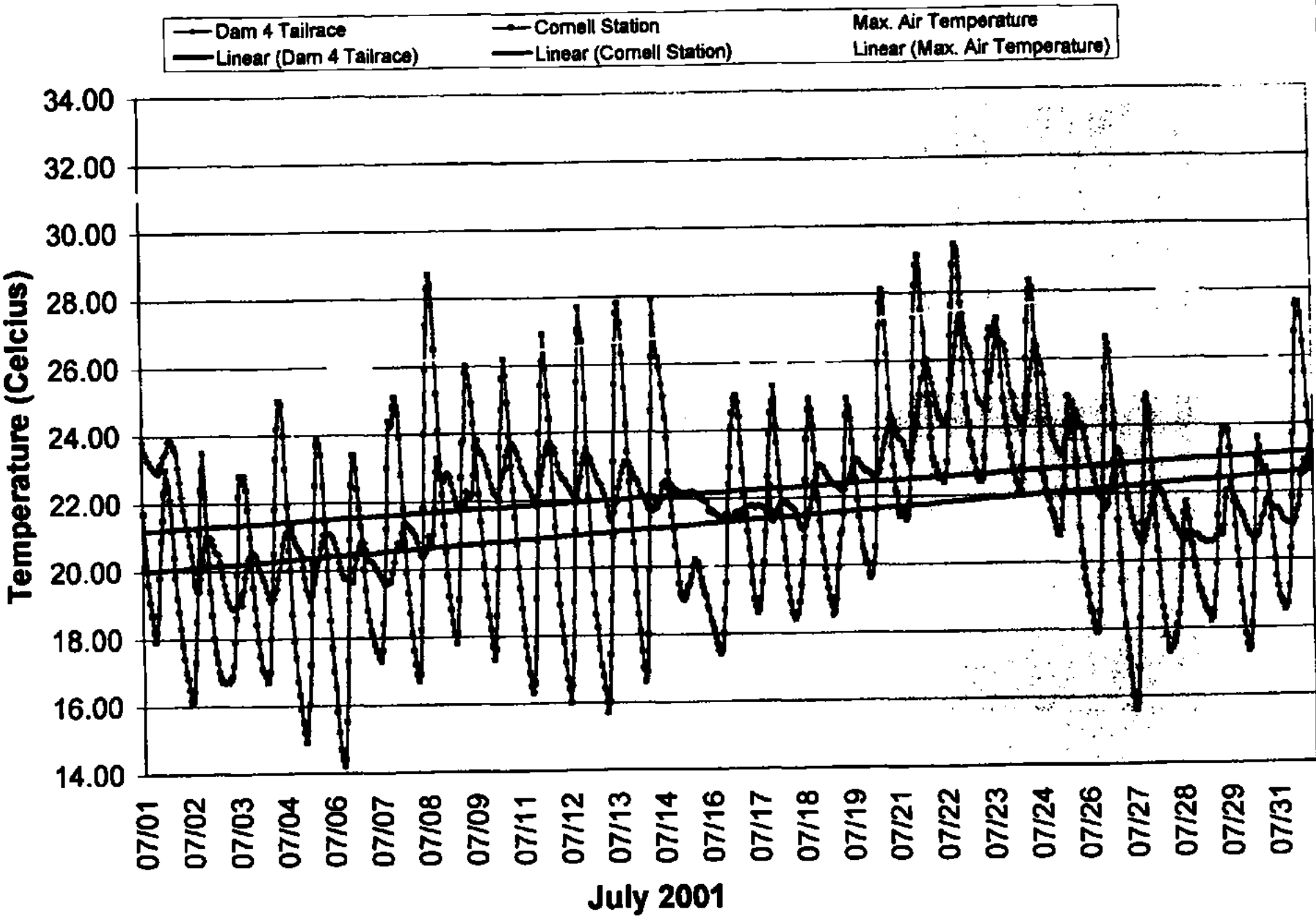
cc: Mr. Bob Edwards, UPPCO - UHGO (cover only)
Mr. Bob Meyers, UPPCO - UISH (cover only)
Mr. Gil Snyder, WPSC - D2 (cover only)
Mr. Shawn Puzen, WPSC - A2
Mr. Pat Fulsher, UPPCO - UES
Ms. Jessica Mistak, MDNR
Ms. Christie Deloria, USFWS
Ms. Joan Johanek, WPSC - D2 (File)

Appendix A

Augmentation Effectiveness Evaluation Data



Escanaba River Temperature



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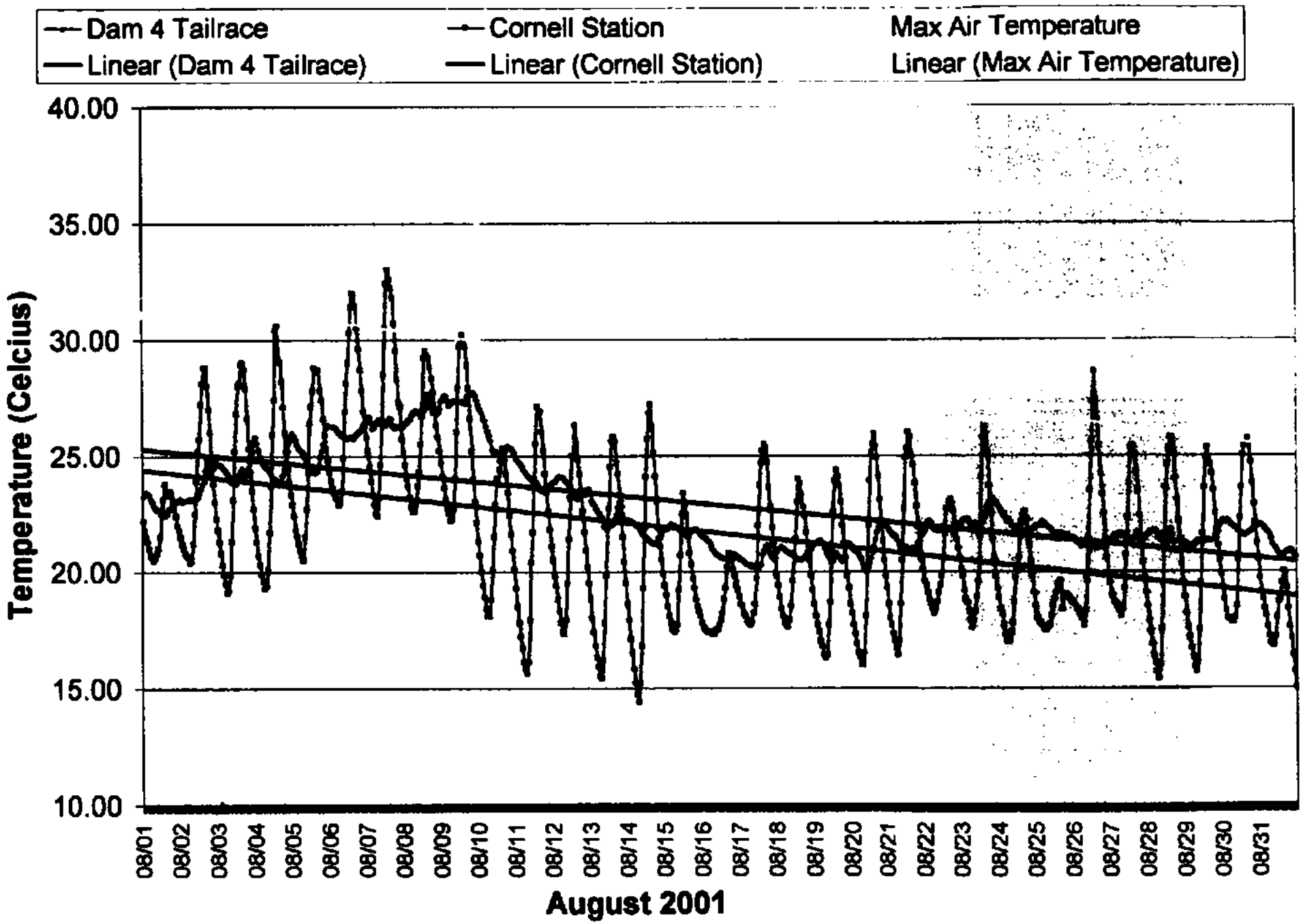

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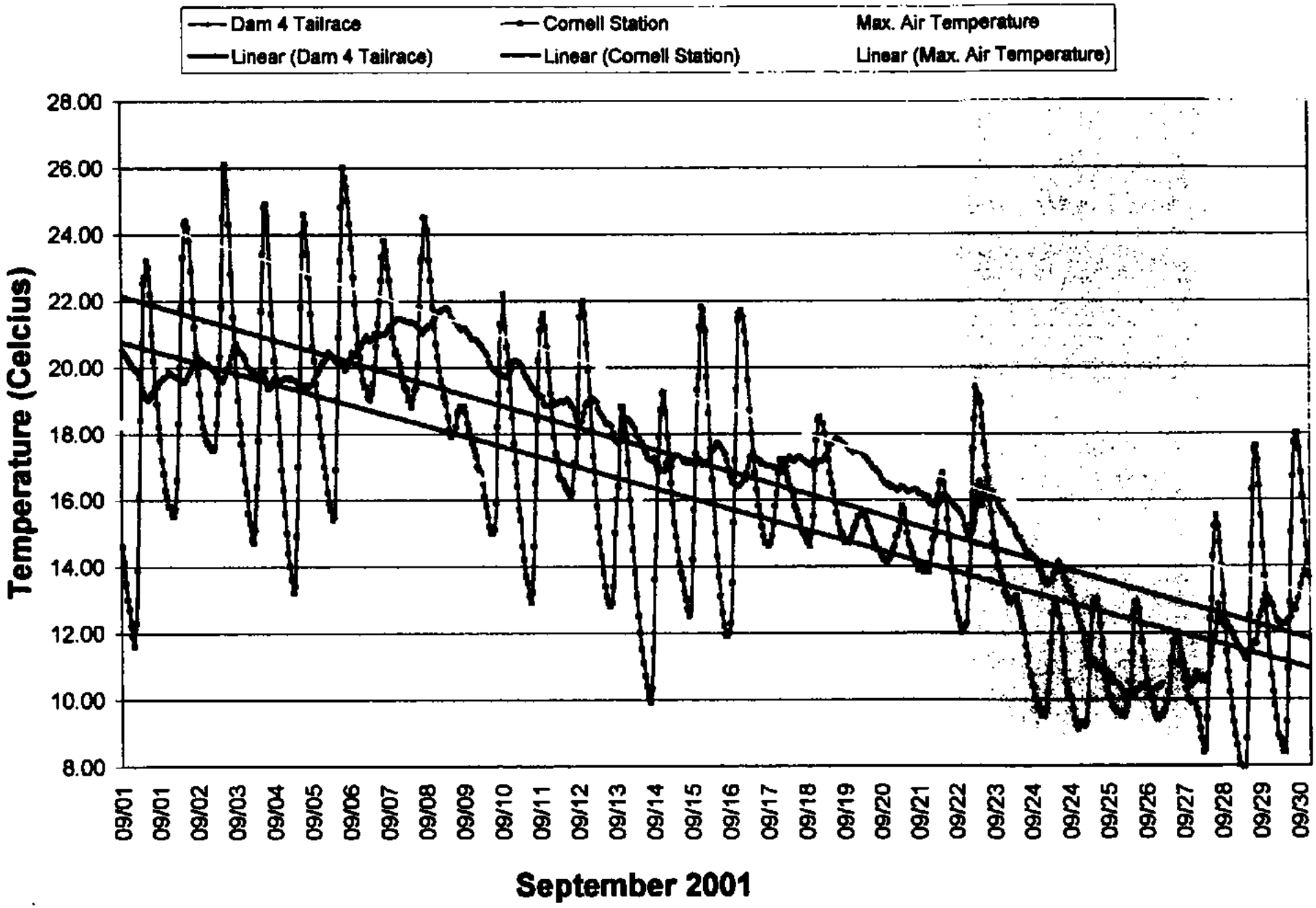

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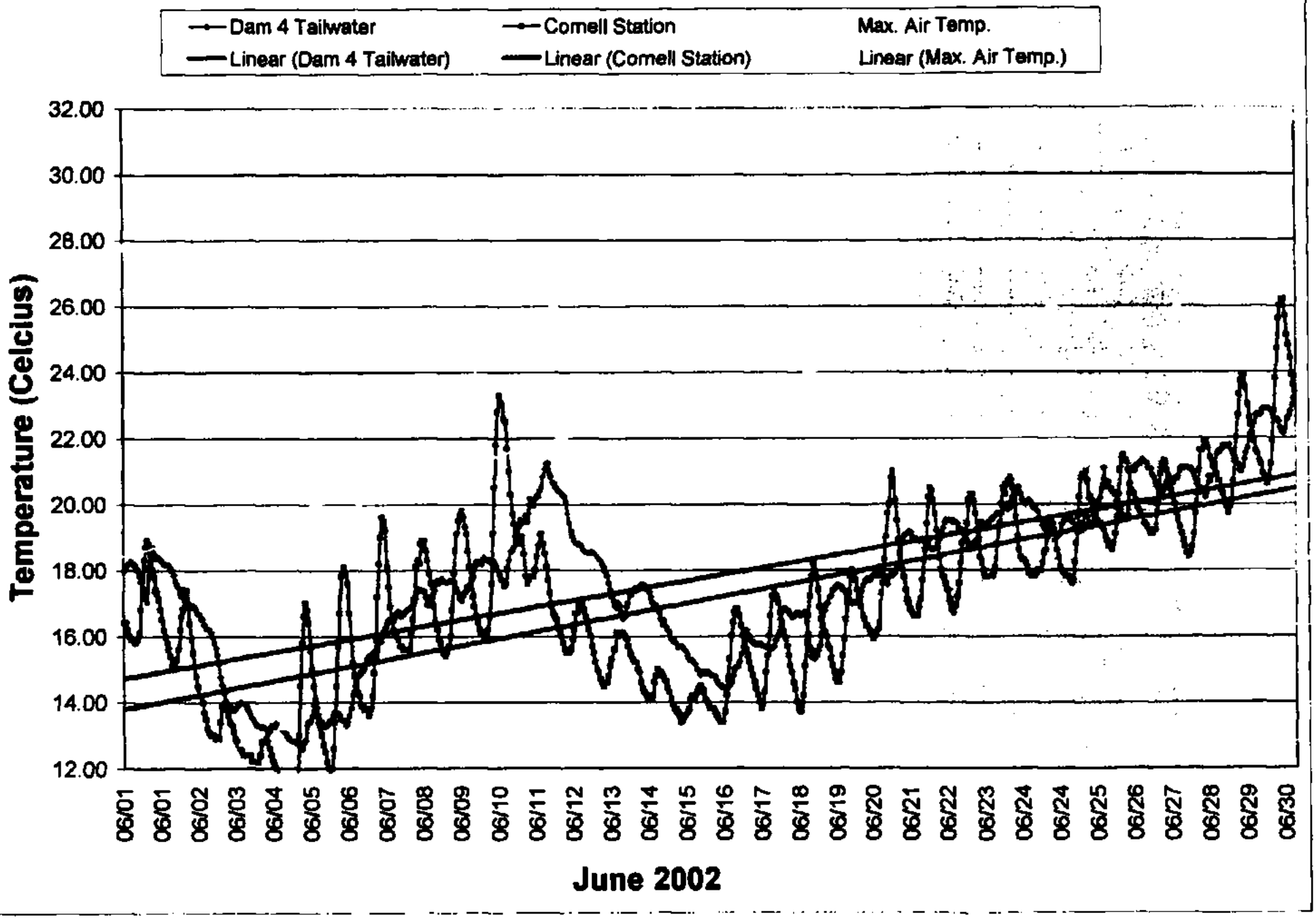

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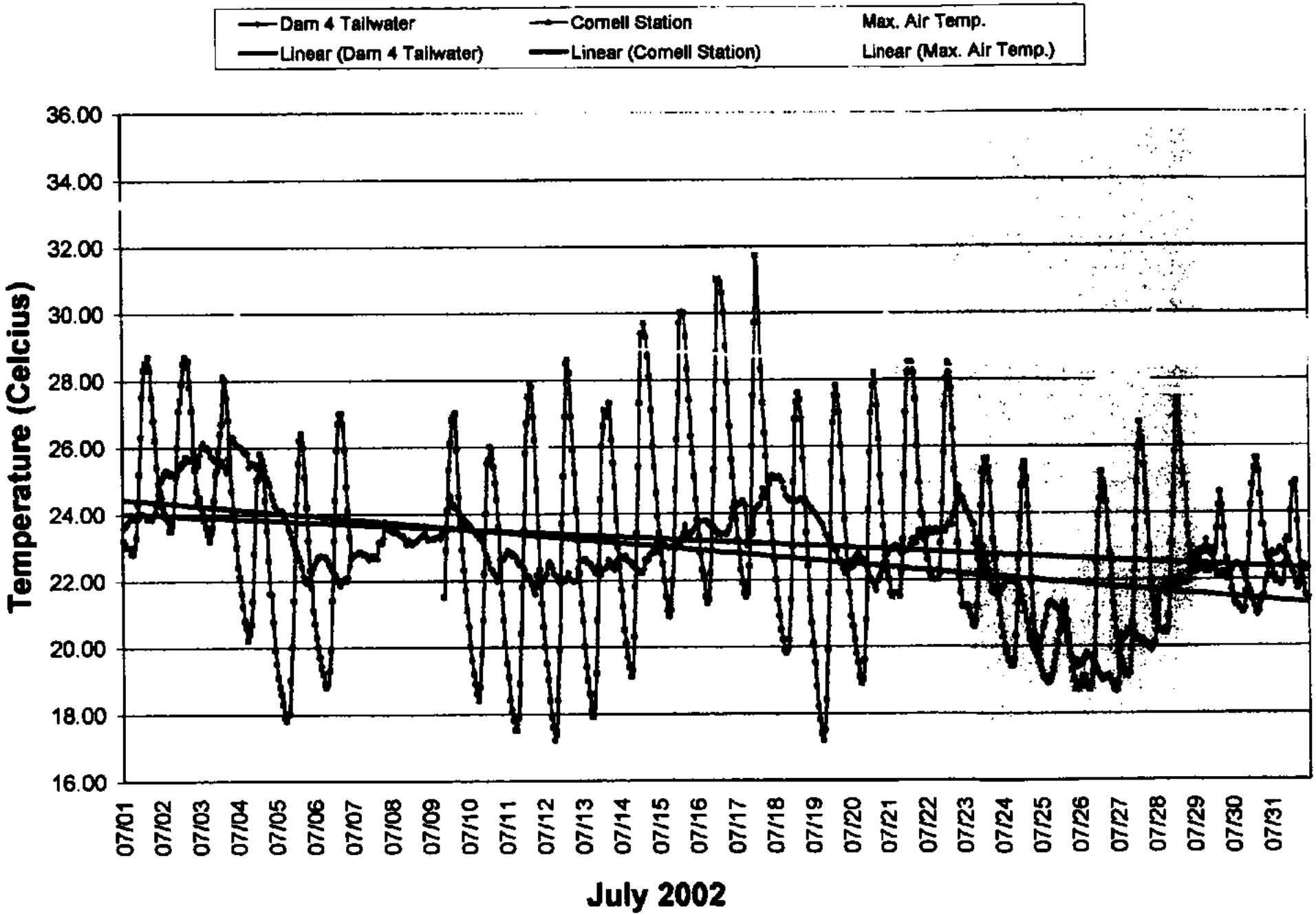

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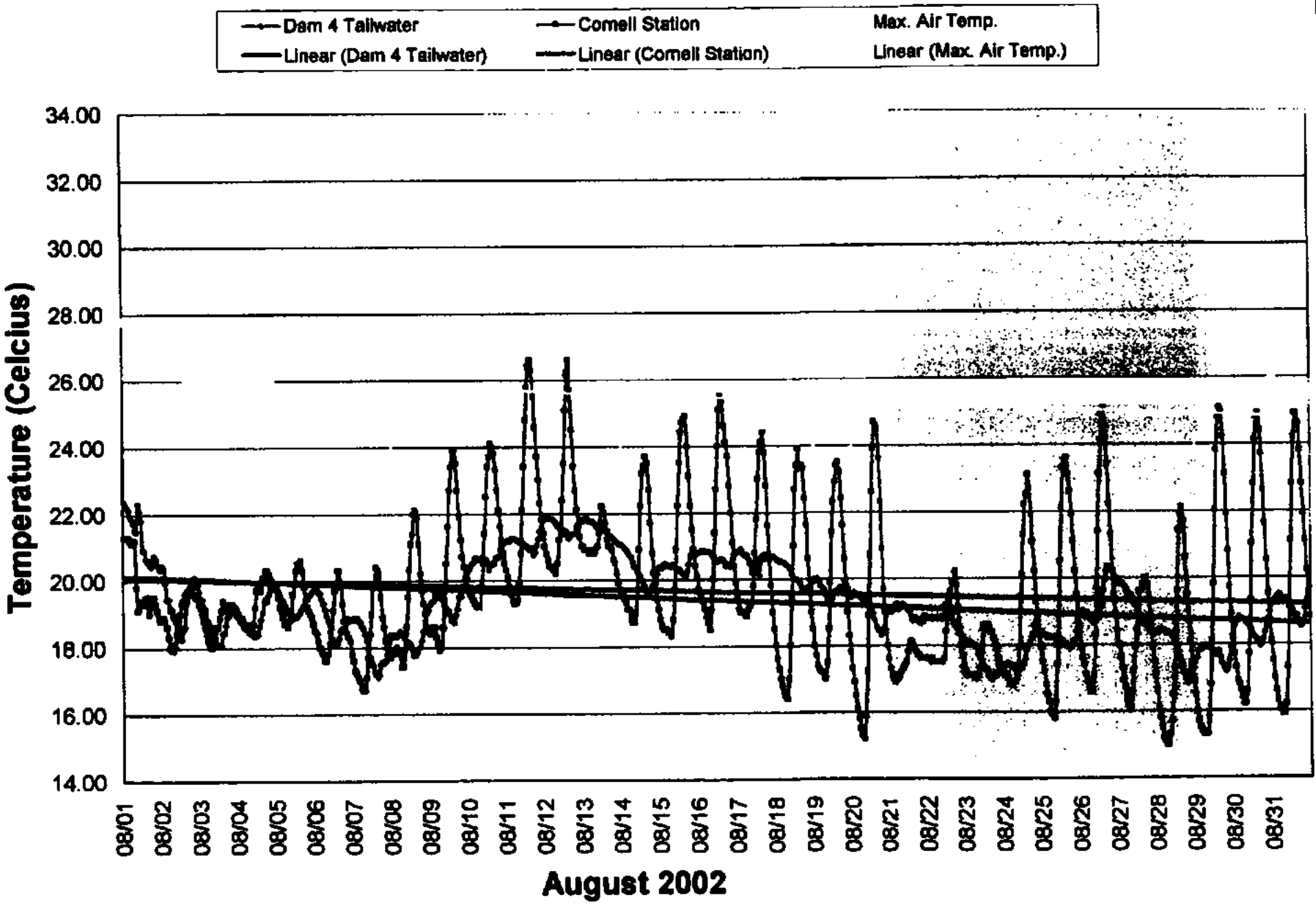

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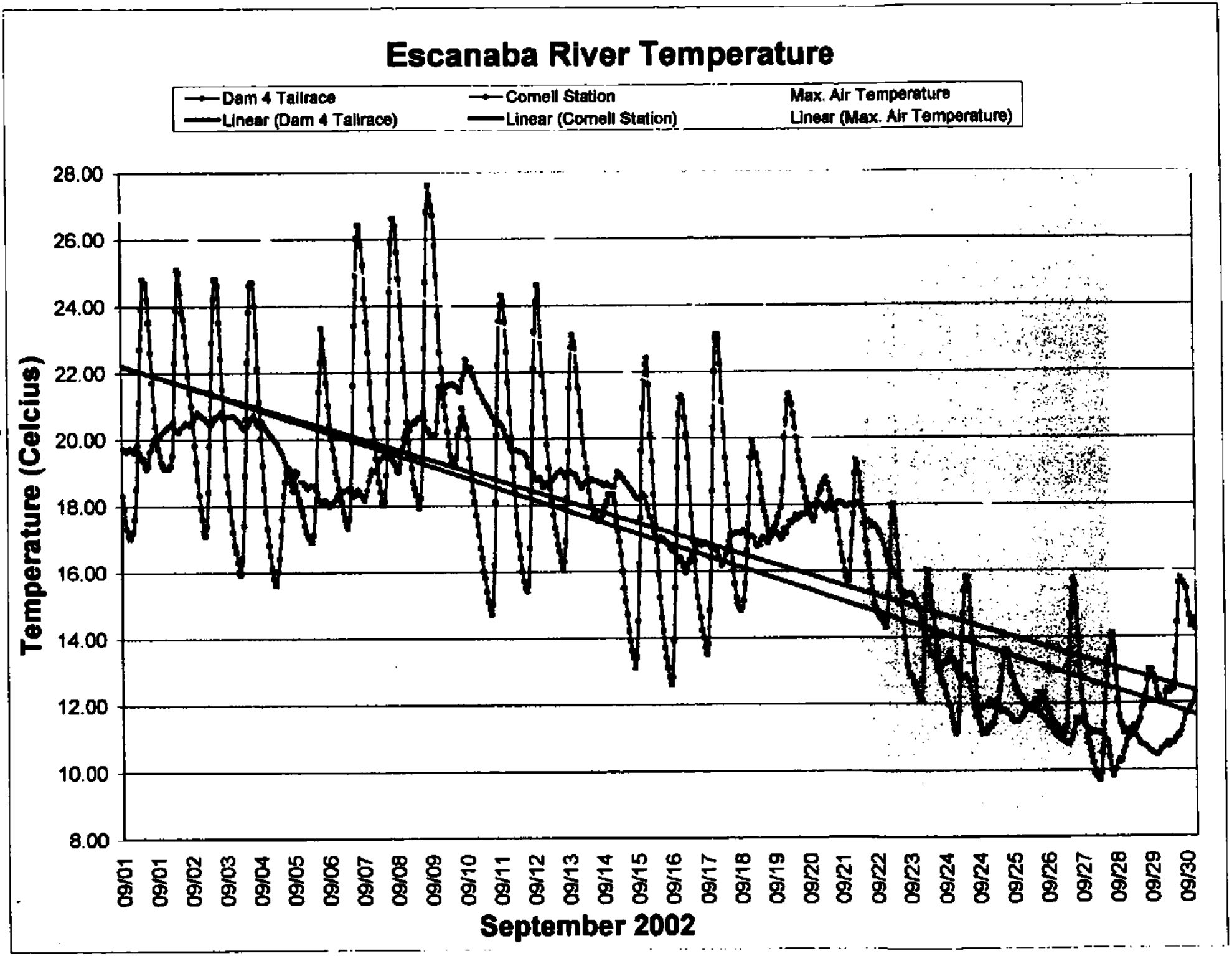

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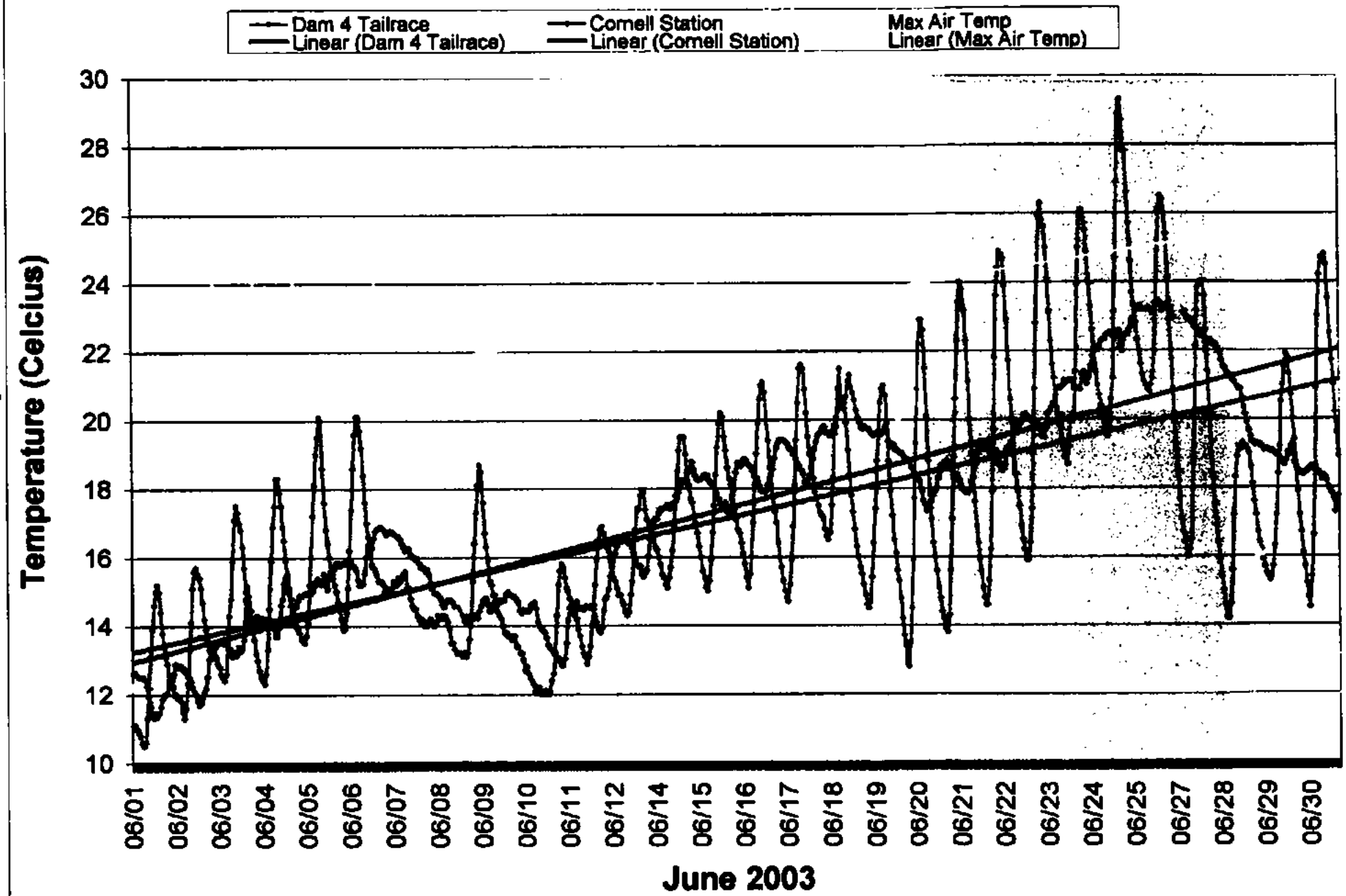

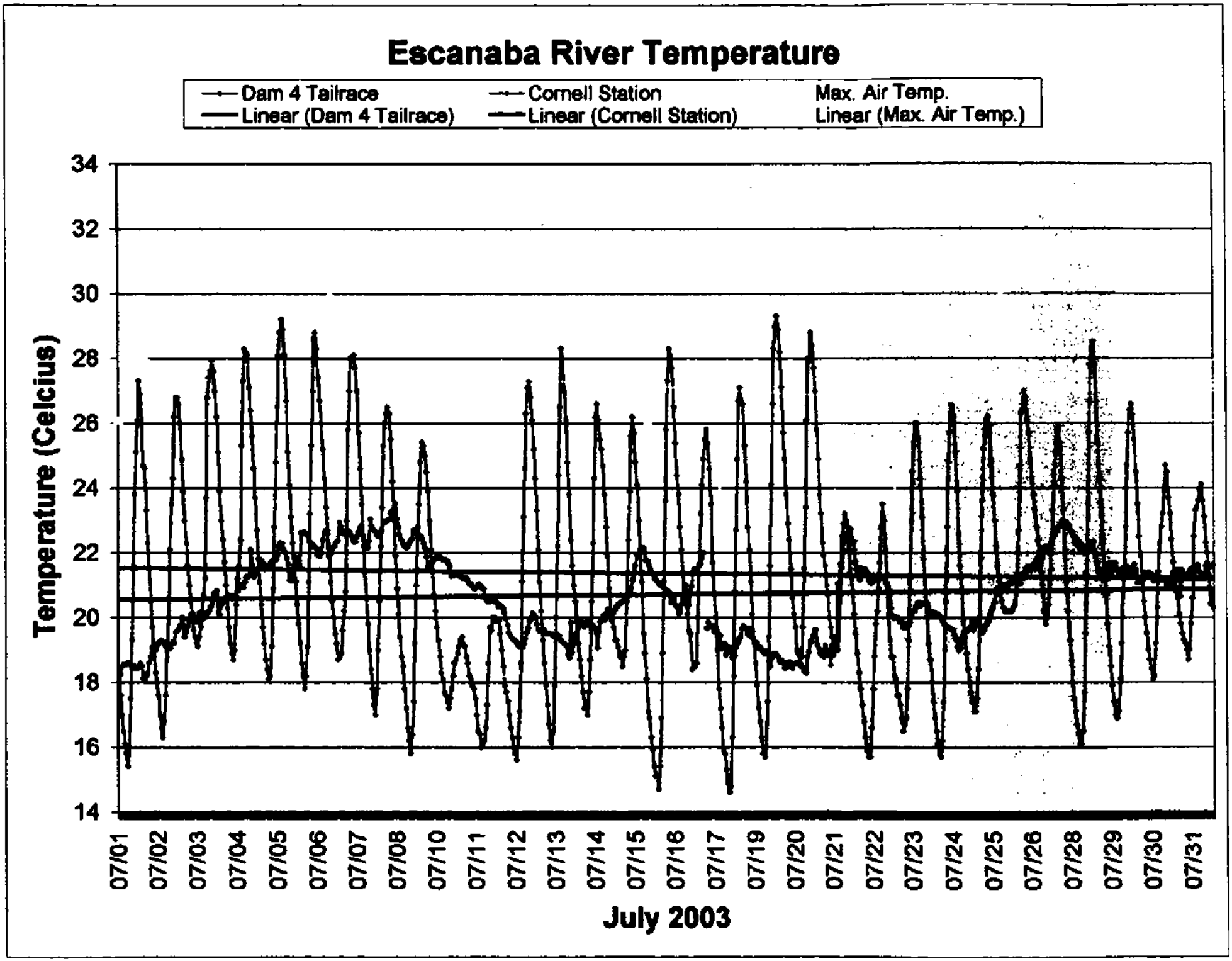

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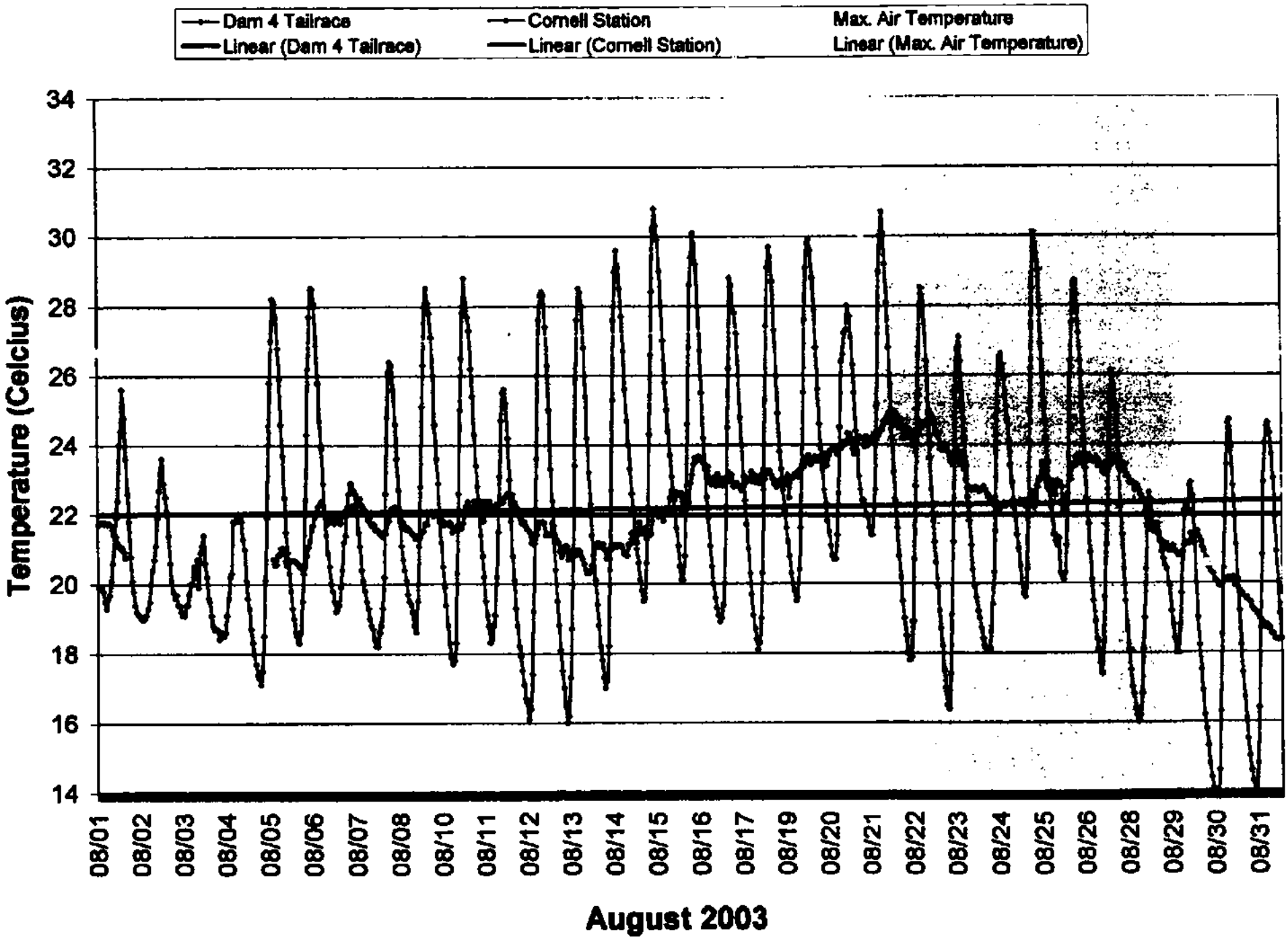

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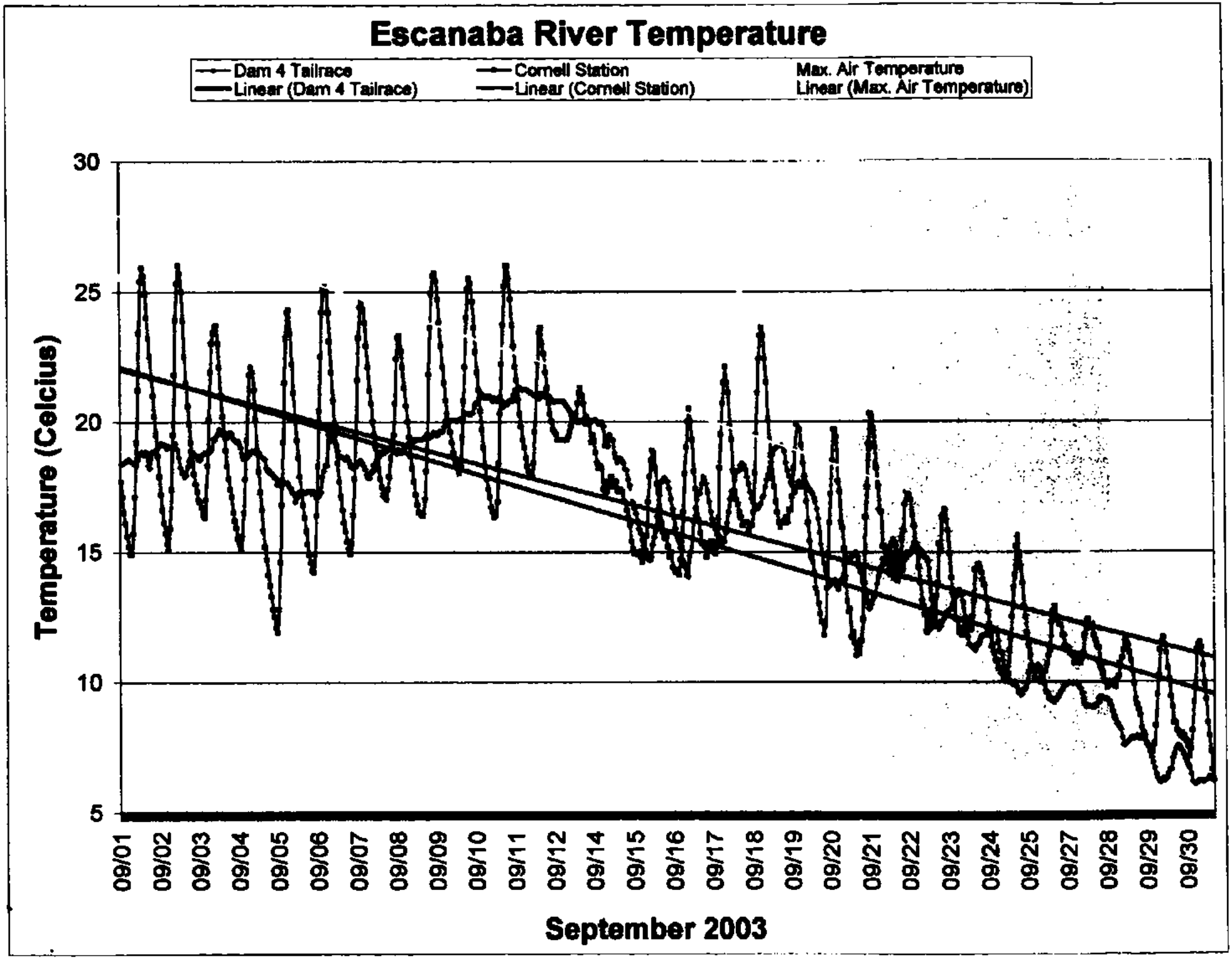
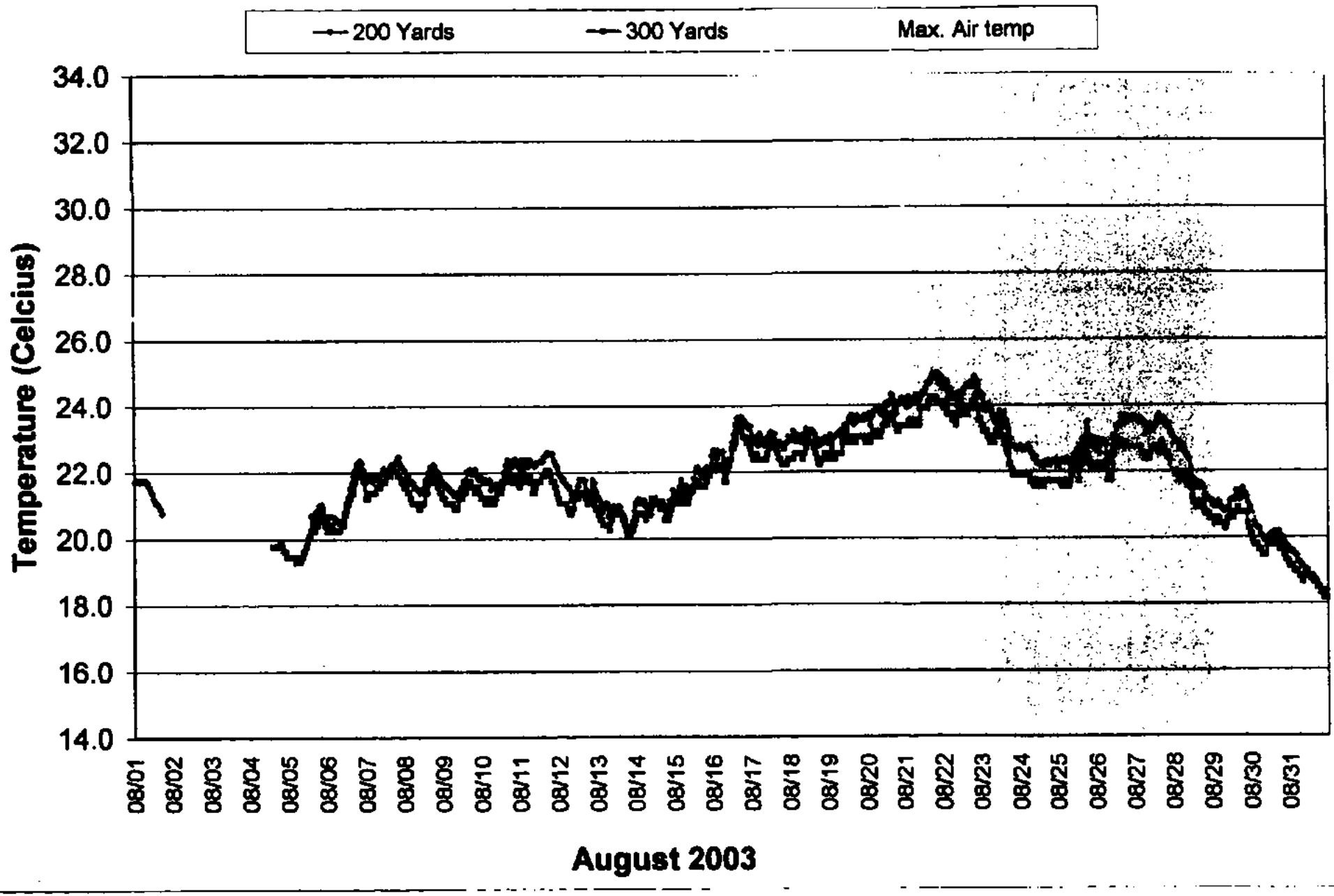
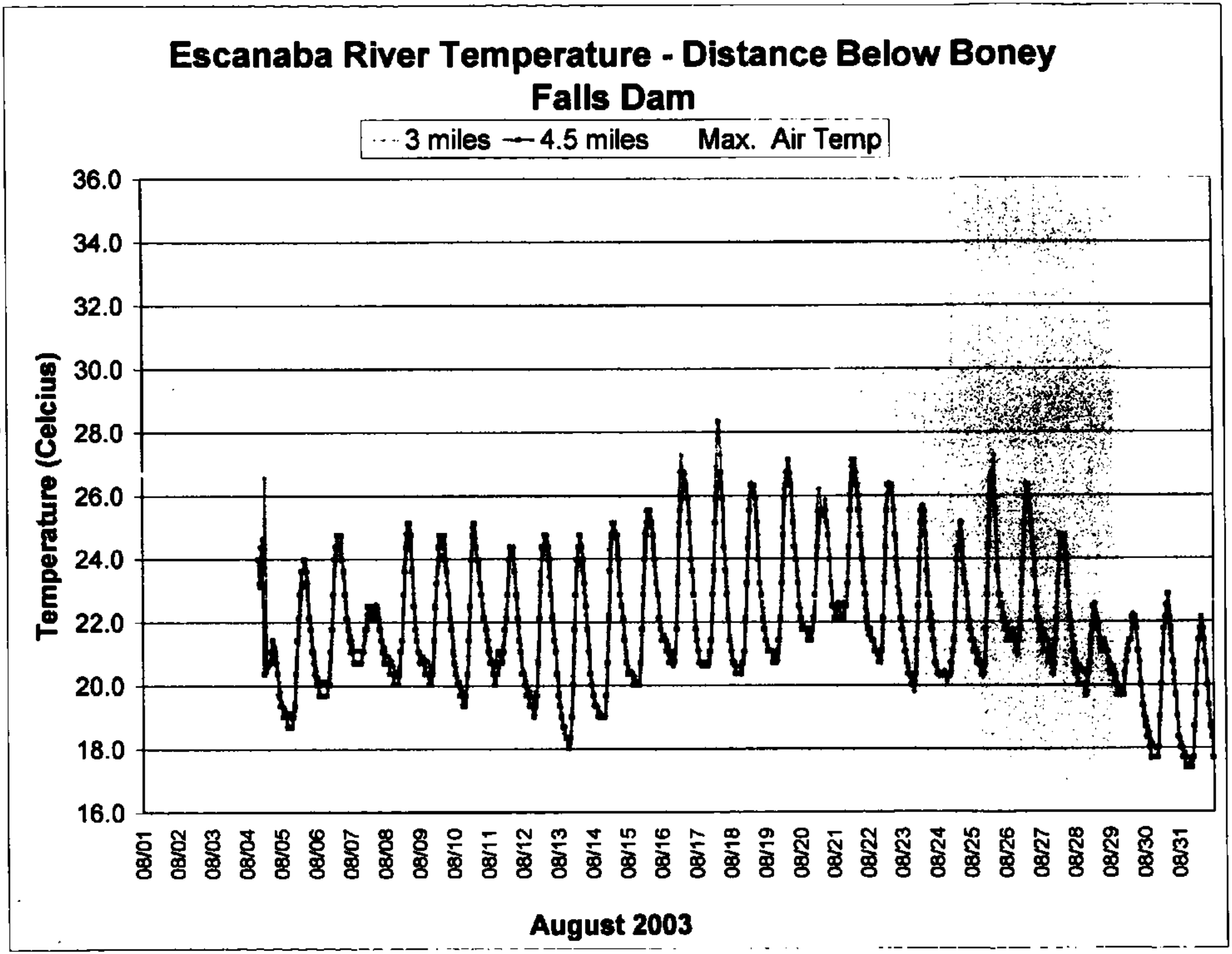


Escanaba River Temperature - Distance Below Boney Falls Dam





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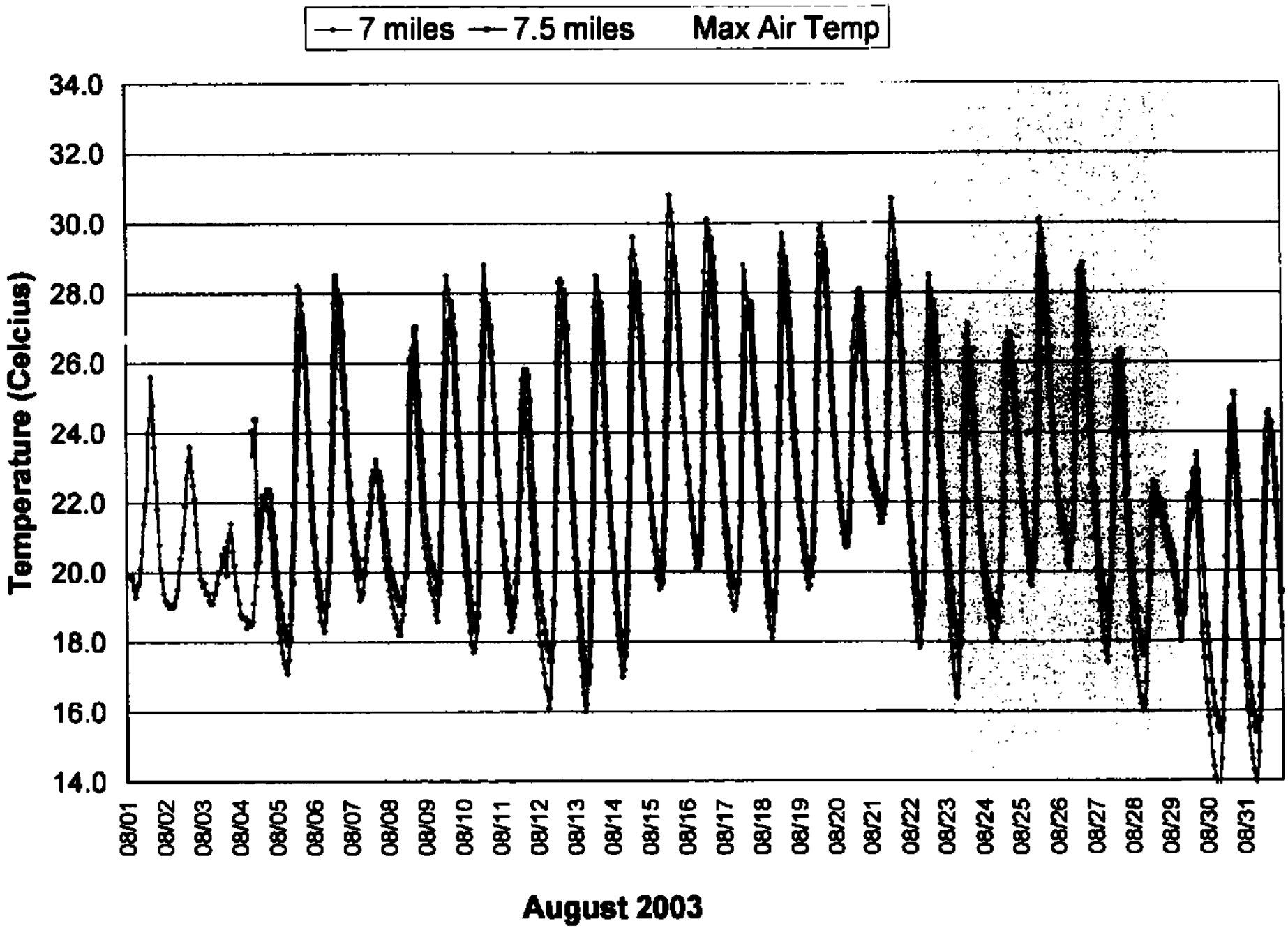

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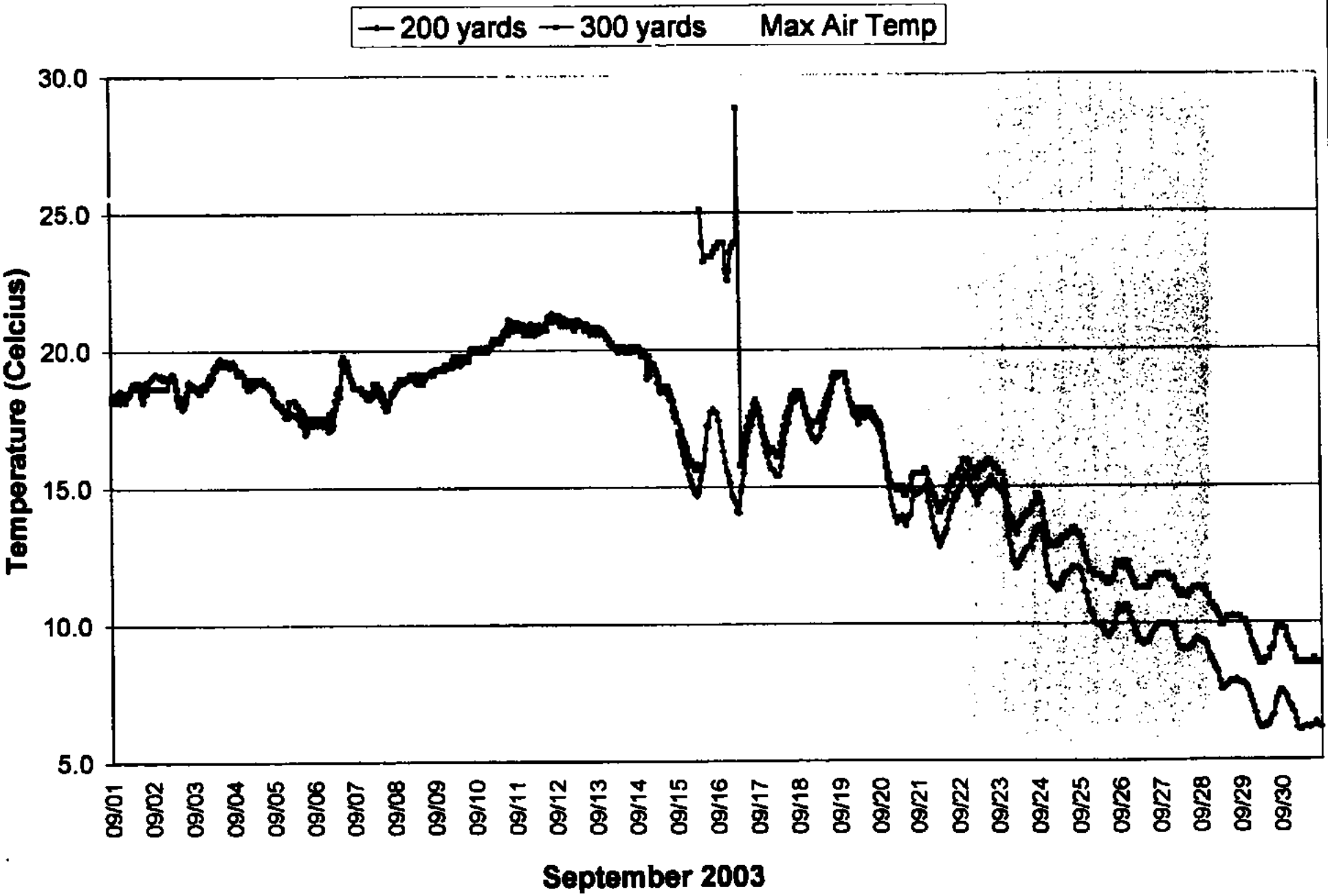
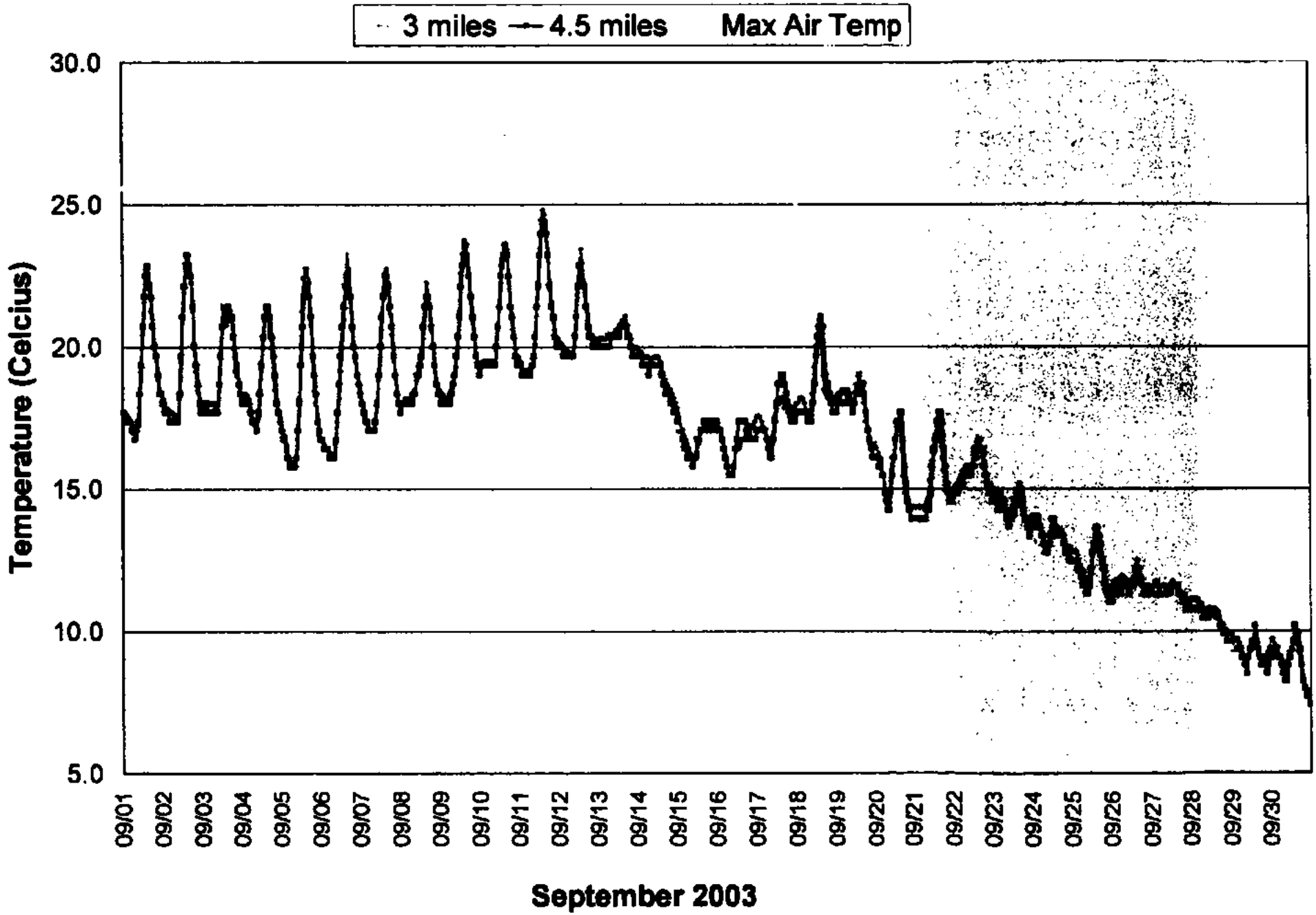
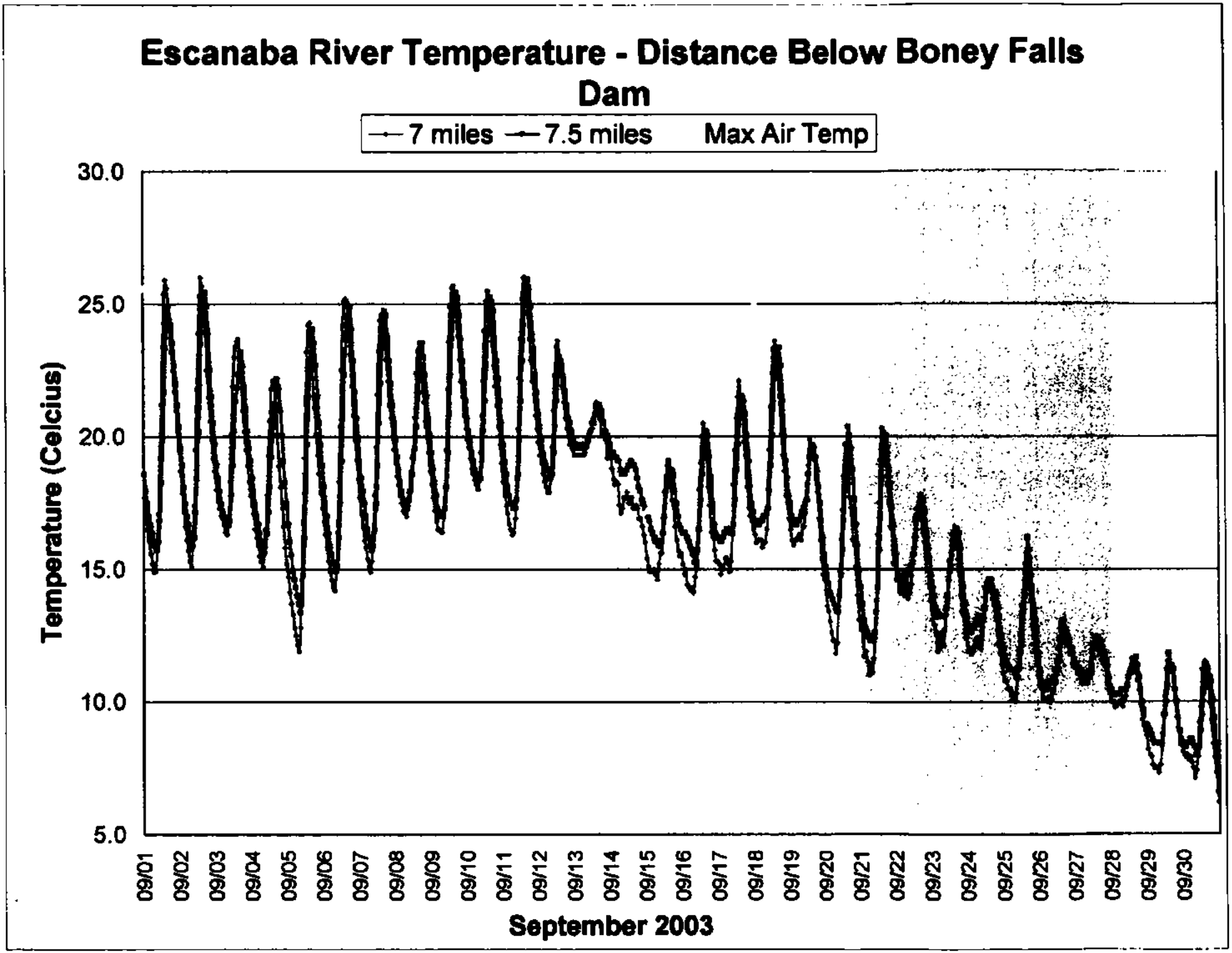
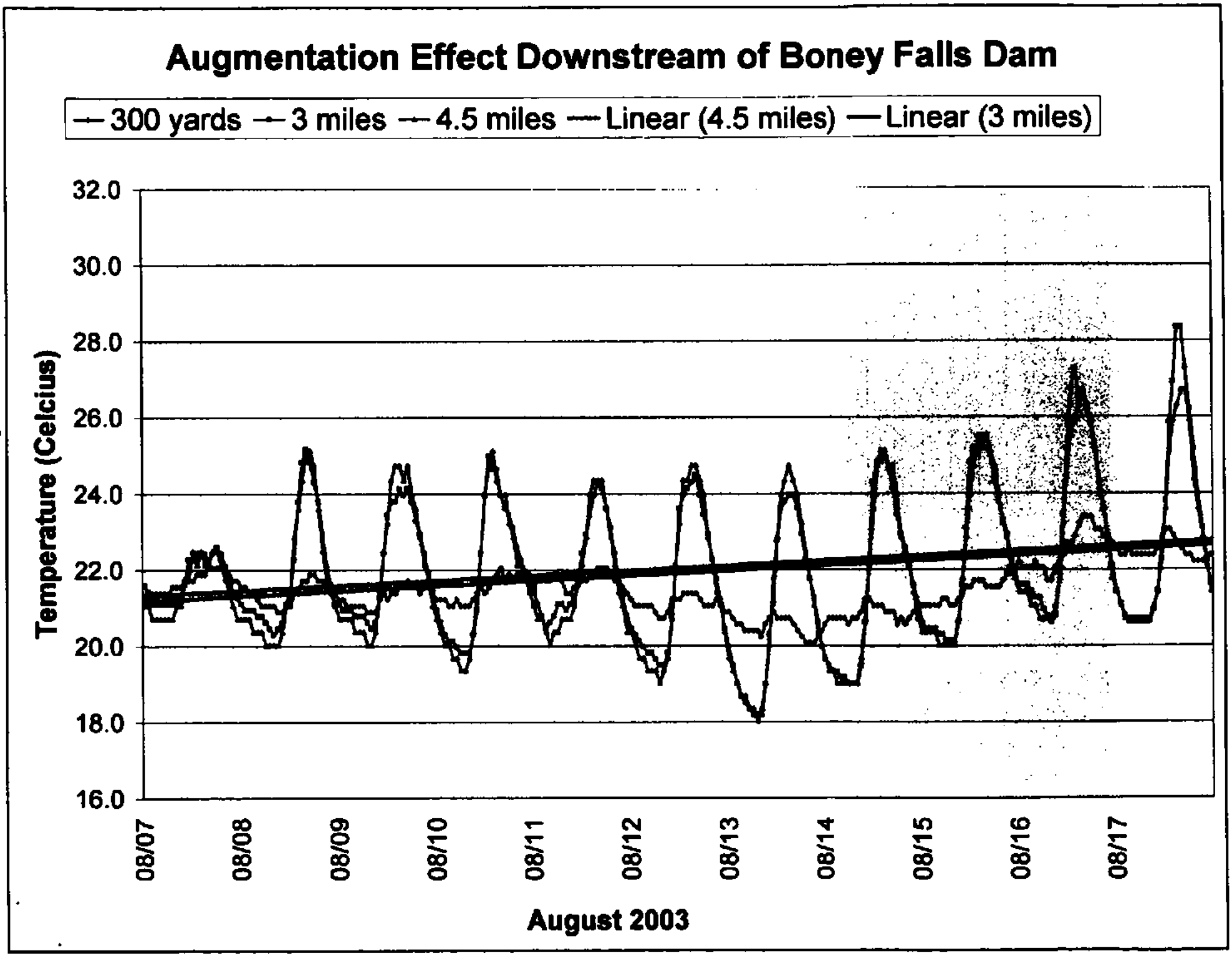


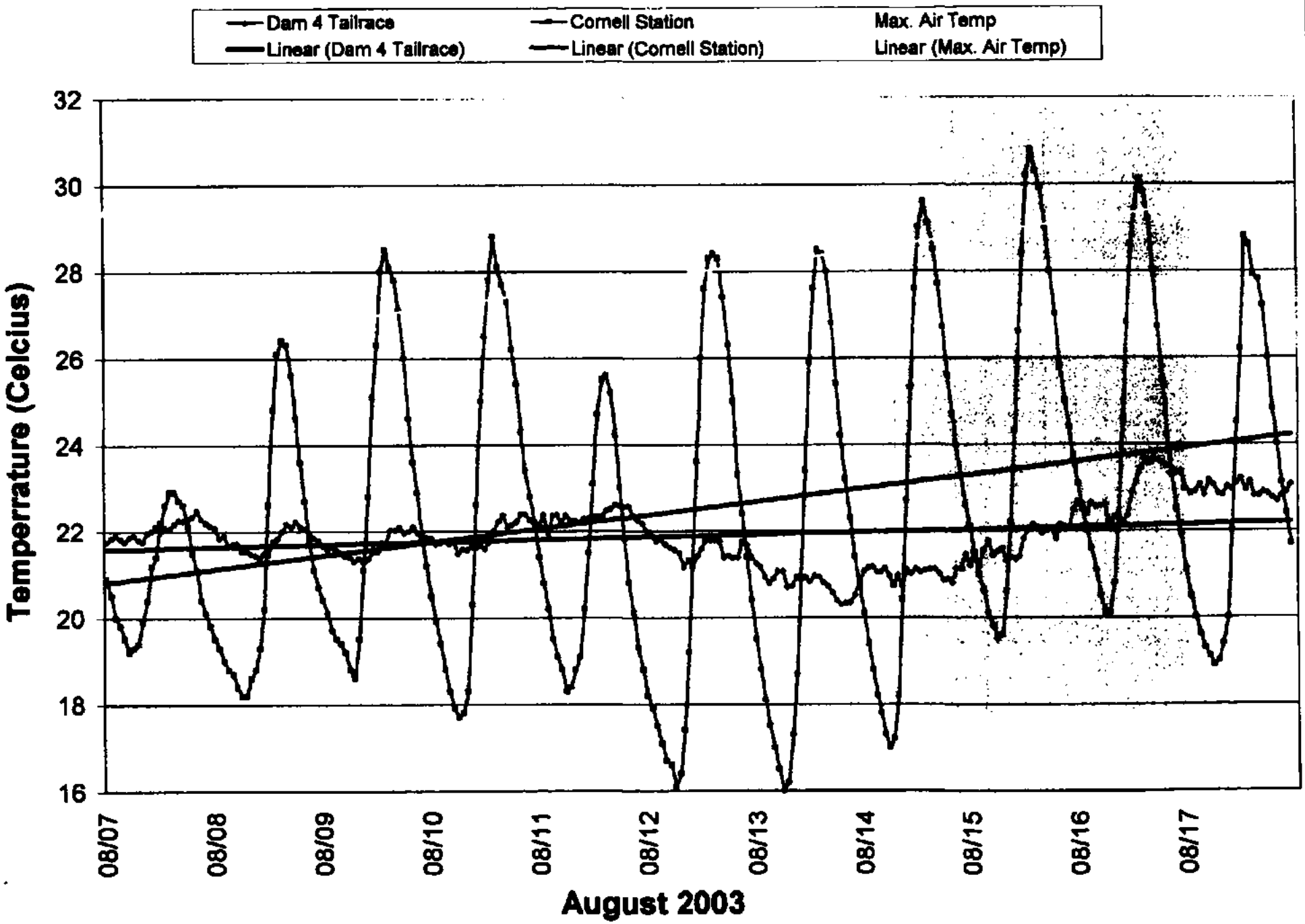
Escanaba River Temperature - Distance Below Boney Falls Dam







Augmentation Effect at Cornell Monitoring Station



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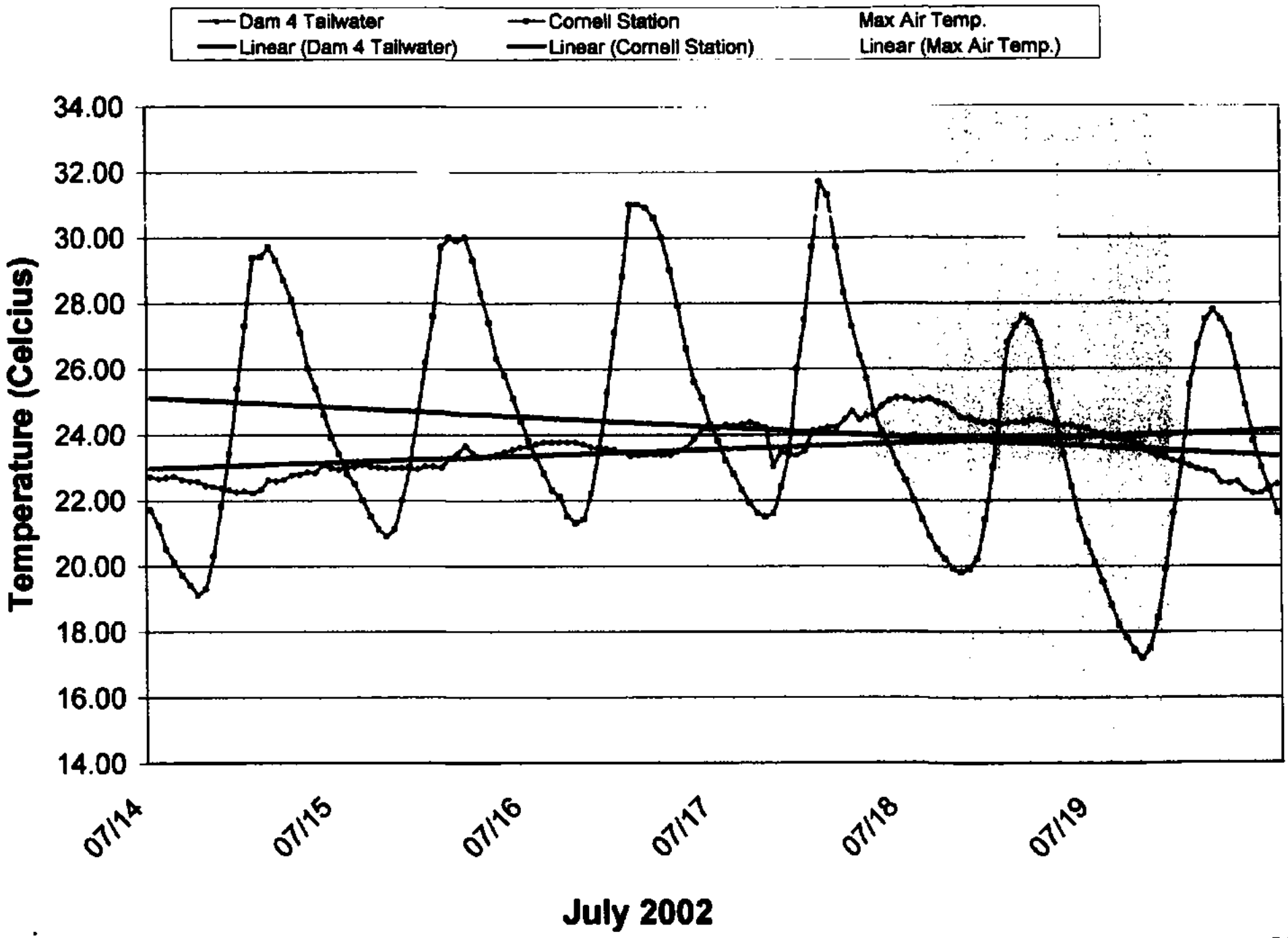

Appendix B

Documentation of Agency Consultation

Upper Peninsula Power Company
(a subsidiary of WPS Resources Corporation)
700 N. Adams Street
P.O. Box 19001
Green Bay, WI 54307-9001

January 16, 2004

FERC Project No. 2506

Ms. Jessica Mistak
Michigan Department of Natural Resources
Marquette State Fish Hatchery and Station
488 Cherry Creek Road
Marquette, MI 49855

Dear Ms. Mistak:

Per the Order Approving Flow Augmentation Plan, issued January 15, 1997, for the Escanaba River Hydroelectric Project, Upper Peninsula Power Company (UPPCO) is pleased to submit temperature data for an evaluation of the effectiveness of the augmentation plan at Dam No.4 (Boney Falls) for your review and comment. For consultation purposes, this information is also being provided to Mr. Burr Fisher of the U.S. Fish and Wildlife Service (FWS) and Mr. Larry Wanic of the Escanaba River Association (ERA).

The purpose of the augmentation plan is to enhance the thermal regime of the Escanaba River downstream of Boney Falls to protect the brown trout present in the river from thermal stress. During the initial development of the augmentation plan, the ERA was consulted for comments and suggestions about the plan. In a letter dated November 7, 1995, the ERA stated that the main goal of the association is to protect the highest priority section of trout water, the first 3.5 miles below Boney Falls. Brown trout have a critical thermal maximum temperature of 30°C. To address this, the objective of the augmentation plan is to maintain the water temperature in the Escanaba River between the Boney Falls dam and the USGS monitoring station in Cornell, MI (station I.D. No. 04059000) at or below 26°C.

Hourly water temperature data collected in the tailrace of Boney Falls and at the USGS monitoring station in Cornell (approximately 7 miles downstream) has been plotted to determine if and when water temperatures exceeded 26°C during the months of June, July, August and September of 2001, 2002, and 2003. Daily maximum air temperature readings from a National Climactic Data Center monitoring station in Cornell (station I.D. No. 201802) have been plotted with the water temperature data, and a linear trend analysis for all three sets of data is included. Please note that in 2001, 2002, and prior to July 17, 2003, the temperature monitor for Boney Falls was located directly in the turbine discharge. After July 17th, 2003, the data reflects monitoring at a location downstream from the confluence of the powerhouse tailrace and spillway.

The following is a summary of the number of days when water temperatures exceeded 26°C for at least 1 hour at the monitoring locations, and whether augmentation was occurring at the time:

Monitoring Year	Monitoring Location	Days Over 26°C – No Augmentation	Days Over 26°C – During Augmentation
2001	Boney Falls Tailrace	7	7
	Cornell USGS Station	36	8
2002	Boney Falls Tailrace	0	2
	Cornell USGS Station	21	6
2003	Boney Falls Tailrace	0	0
	Cornell USGS Station	21	32

The graphs of the water temperature in the Boney Falls Tailrace compared to the temperature at the Cornell monitoring location show that the 26°C temperature threshold was exceeded several times at Cornell, with a few periods where the temperature exceeded 30°C. In general, daily maximum water temperatures measured at Cornell were 2 – 4 °C higher than in the tailrace of Boney Falls, even during periods of augmentation. The hourly water temperature plots of the data recorded at Cornell correlate best to the pattern of the daily maximum air temperature, not to the pattern of the discharge from Boney Falls (spikes in the daily maximum water temperatures occurred at the same time as peaks in atmospheric temperatures). Large swings in water temperature downstream from Boney Falls can be seen throughout the June through September monitoring period, while temperatures in the Boney Falls Tailrace remain more stable.

Mr. Darren Kramer of the MDNR also collected water temperature data at 4 monitoring locations below the Boney Falls Dam from August 4th through November 4th, 2003. The monitoring locations, and their approximate distances below Boney Falls, are listed below:

- 300 yards downstream at the canoe put in below Boney Falls Dam.
- 3 miles downstream at Karas Lodge.
- 4.5 miles downstream where Hunter's Brook joins the Escanaba River.
- 7.5 miles downstream at Burnt Camp public access location.

The following is a summary of the number of days when water temperatures exceeded 26°C for at least 1 hour at the Karas Lodge and Hunter's Brook monitoring locations (the lower end of the ERA highest priority section), and whether augmentation was occurring at the time:

Monitoring Year	Monitoring Location	Days Over 26°C – No Augmentation	Days Over 26°C – During Augmentation
2003	Karas Lodge	3	6
	Hunter's Brook	2	6

The pattern of the plotted water temperature data 3 and 4.5 miles below Boney Falls shows the same fluctuations in water temperature observed downstream at Cornell, with smaller daily fluctuations.

Linear trend plots of the temperature data also show a better correlation between atmospheric temperature and the temperature in the Escanaba River at Cornell. This indicates that environmental factors other than the temperature of water released during augmentation from Boney Falls have a greater influence on the downstream thermal regime of the Escanaba River.

To illustrate this point, data from August 7th through the 17th of 2003 has been plotted for the Karas Lodge, Hunter's Brook, and Cornell monitoring locations. Augmentation was occurring for 205 of the 264 hours during this period. The graphs show only a slight upward trend in the tailrace water temperature of Boney Falls, while both the air and the downstream temperatures show a more significant upward trend that increases with distance from Boney Falls. If augmentation had a significant effect on the thermal regime of the river, the trends at the downstream monitoring station should be similar to the trend in the tailrace. However, it appears that air or other environmental factors have a greater influence on the water temperature. A similar plot of data from July 14th to July 19th also shows the same trend (Boney Falls Tailrace and Cornell station data only. Data was not collected at the Karas Lodge and Hunter's Brook locations during the same time period).

The data collected during the past three monitoring seasons indicates that while the temperature threshold of 26°C is being met in the Boney Falls tailrace, other environmental factors, such as atmospheric temperatures, appear to have a greater influence on the thermal regime of the Escanaba River downstream. While augmentation at Dam No. 4 may influence the thermal profile of the Escanaba River immediately downstream from the Boney Falls (less than 3 miles downstream), the effect of augmentation decreases as the distance from Boney Falls increases. Fewer

deviations from the 26°C threshold temperature were observed at the Karas Lodge and Hunter's Brook monitoring locations, however, more deviations observed at these locations occurred during periods of augmentation rather than during run-of-river operation.

The information presented in this document shows that augmentation does not have a direct impact on the Escanaba River thermal regime downstream of the Boney Falls Dam. Atmospheric or other environmental conditions have a significant effect on water temperature below Boney Falls. Augmentation may help decrease the severity of deviations above the threshold temperature, yet the data indicates that augmentation does not have a significant effect on the thermal regime of the Escanaba River as close as 3 miles downstream of the Boney Falls Dam.

While it does not appear that augmentation has a significant impact on the thermal regime of the Escanaba River, UPPCO proposes to continue the augmentation program, as it may help mitigate high temperatures at downstream locations during periods of low flow and high atmospheric temperature. UPPCO will continue the program following the protocol established in the Order Approving Flow Augmentation Plan, and will continue to notify the MDNR and FWS within 10 days of augmentation events, as the events are deviations from run-of-river operation. UPPCO will be relieved of the annual reporting requirement as described in the Order.

Please review the enclosed information and make any comments or suggestions as soon as possible, but within 30 days of this letter. Should you have any questions or would like more information, please do not hesitate to call Mr. Shawn Puzen at (920) 433-1094 or myself at (920) 433-1833. Thank you for your time and consideration.

Sincerely,

Mark Metcalf

Mark W. Metcalf
Environmental Consultant
Telephone: (920) 433-1833

vav

Enc.

cc: Mr. Pat Fulsher, UPPCO - ESC
Mr. John Suppnick - MDEQ

From: "Jessica Mistak" <MISTAKJL@michigan.gov>
To: <mmetcal@wpsr.com>, <spuzen@wpsr.com>
Date: 2/19/04 10:52AM
Subject: Boney Falls Augmentation Comments

These comments supercede comments sent on February 17, 2004.
****

The Michigan Department of Natural Resource (MDNR) has reviewed the January 26, 2004 Boney Falls Augmentation Effectiveness document and held discussions with the Michigan Department of Environmental Quality and the Upper Peninsula Power Company (UPPCO) regarding this issue. MDNR agrees that the augmentation effectiveness data is inconclusive. However, since UPPCO has decided to continue the augmentation program, no additional effectiveness monitoring will be required by MDNR.

Thank you for the opportunity to comment.
Sincerely,
Jessica Mistak

<>< <>< <>< <>< <>< <>< <>< <><
Jessica Mistak, Senior Fisheries Biologist
MDNR Marquette Fisheries Station
484 Cherry Creek Rd
Marquette, MI 49855
906-249-1611 ext. 308
FAX 906-249-3190
><> ><> ><> ><> ><> ><> ><> ><>

CC: <christie_deloria@fws.gov>, "Chris Freiburger" <FREIBURG@michigan.gov>, "John Suppnick" <SUPPNICJ@michigan.gov>

Upper Peninsula Power Company
(a subsidiary of WPS Resources Corporation)
700 N. Adams Street
P.O. Box 19001
Green Bay, WI 54307-9001

January 16, 2004

FERC Project No. 2506

Mr. Larry Wanic
Escanaba River Association
1019 12th Rd.
Bark River, MI 49807

Dear Mr. Wanic:

Per the Order Approving Flow Augmentation Plan, issued January 15, 1997, for the Escanaba River Hydroelectric Project, Upper Peninsula Power Company (UPPCO) is pleased to submit temperature data for an evaluation of the effectiveness of the augmentation plan at Dam No.4 (Boney Falls) for your review and comment. For consultation purposes, this information is also being provided to Ms. Jessica Mistak of the Michigan Department of Natural Resources (MDNR), and Mr. Burr Fisher of the U.S. Fish and Wildlife Service (FWS).

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effect of augmentation decreases as the distance from Boney Falls increases. Fewer deviations from the 26°C threshold temperature were observed at the Karas Lodge and Hunter's Brook monitoring locations, however, more deviations observed at these locations occurred during periods of augmentation rather than during run-of-river operation.

The information presented in this document shows that augmentation does not have a direct impact on the Escanaba River thermal regime downstream of the Boney Falls Dam. Atmospheric or other environmental conditions have a significant effect on water temperature below Boney Falls. Augmentation may help decrease the severity of deviations above the threshold temperature, yet the data indicates that augmentation does not have a significant effect on the thermal regime of the Escanaba River as close as 3 miles downstream of the Boney Falls Dam.

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Sincerely,

Mark Metcalf

Mark W. Metcalf
Environmental Consultant
P. O. Box 19002
Green Bay, WI 54307
Telephone: (920) 433-1833
mmetcal@wpsr.com

vav

Enc.

Response to Comments from the Escanaba River Association

Per a phone conversation with Mr. Larry Wanic of the Escanaba River Association during the week of January 26, 2004, the Escanaba River Association supports the continuation of the augmentation plan.

Upper Peninsula Power Company
(a subsidiary of WPS Resources Corporation)
700 N. Adams Street
P.O. Box 19001
Green Bay, WI 54307-9001

January 16, 2004

FERC Project No. 2506

Mr. Burr Fisher
U.S. Fish & Wildlife Service
East Lansing Field Office
2651 Coolidge Rd.
East Lansing, MI 48823

Dear Mr. Fisher:

Per the Order Approving Flow Augmentation Plan, issued January 15, 1997, for the Escanaba River Hydroelectric Project, Upper Peninsula Power Company (UPPCO) is pleased to submit temperature data for an evaluation of the effectiveness of the augmentation plan at Dam No.4 (Boney Falls) for your review and comment. For consultation purposes, this information is also being provided to Ms. Jessica Mistak of the Michigan Department of Natural Resources (MDNR), and Mr. Larry Wanic of the Escanaba River Association (ERA).

The purpose of the augmentation plan is to enhance the thermal regime of the Escanaba River downstream of Boney Falls to protect the brown trout present in the river from thermal stress. During the initial development of the augmentation plan, the ERA was consulted for comments and suggestions about the plan. In a letter dated November 7, 1995, the ERA stated that the main goal of the association is to protect the highest priority section of trout water, the first 3.5 miles below Boney Falls. Brown trout have a critical thermal maximum temperature of 30°C. To address this, the objective of the augmentation plan is to maintain the water temperature in the Escanaba River between the Boney Falls dam and the USGS monitoring station in Cornell, MI (station I.D. No. 04059000) at or below 26°C.

Hourly water temperature data collected in the tailrace of Boney Falls and at the USGS monitoring station in Cornell (approximately 7 miles downstream) has been plotted to determine if and when water temperatures exceeded 26°C during the months of June, July, August and September of 2001, 2002, and 2003. Daily maximum air temperature readings from a National Climactic Data Center monitoring station in Cornell (station I.D. No. 201802) have been plotted with the water temperature data, and a linear trend analysis for all three sets of data is included. Please note that in 2001, 2002, and prior to July 17, 2003, the temperature monitor for Boney Falls was located directly in the turbine discharge. After July 17th, 2003, the data reflects monitoring at a location downstream from the confluence of the powerhouse tailrace and spillway.

The following is a summary of the number of days when water temperatures exceeded 26°C for at least 1 hour at the monitoring locations, and whether augmentation was occurring at the time:

Monitoring Year	Monitoring Location	Days Over 26°C – No Augmentation	Days Over 26°C – During Augmentation
2001	Boney Falls Tailrace	7	7
	Cornell USGS Station	36	8
2002	Boney Falls Tailrace	0	2
	Cornell USGS Station	21	6
2003	Boney Falls Tailrace	0	0
	Cornell USGS Station	21	32

The graphs of the water temperature in the Boney Falls Tailrace compared to the temperature at the Cornell monitoring location show that the 26°C temperature threshold was exceeded several times at Cornell, with a few periods where the temperature exceeded 30°C. In general, daily maximum water temperatures measured at Cornell were 2 – 4 °C higher than in the tailrace of Boney Falls, even during periods of augmentation. The hourly water temperature plots of the data recorded at Cornell correlate best to the pattern of the daily maximum air temperature, not to the pattern of the discharge from Boney Falls (spikes in the daily maximum water temperatures occurred at the same time as peaks in atmospheric temperatures). Large swings in water temperature downstream from Boney Falls can be seen throughout the June through September monitoring period, while temperatures in the Boney Falls Tailrace remain more stable.

Mr. Darren Kramer of the MDNR also collected water temperature data at 4 monitoring locations below the Boney Falls Dam from August 4th through November 4th, 2003. The monitoring locations, and their approximate distances below Boney Falls, are listed below:

- 300 yards downstream at the canoe put in below Boney Falls Dam.
- 3 miles downstream at Karas Lodge.
- 4.5 miles downstream where Hunter's Brook joins the Escanaba River.
- 7.5 miles downstream at Burnt Camp public access location.

The following is a summary of the number of days when water temperatures exceeded 26°C for at least 1 hour at the Karas Lodge and Hunter's Brook monitoring locations (the lower end of the ERA highest priority section), and whether augmentation was occurring at the time:

Monitoring Year	Monitoring Location	Days Over 26°C – No Augmentation	Days Over 26°C – During Augmentation
2003	Karas Lodge	3	6
	Hunter's Brook	2	6

The pattern of the plotted water temperature data 3 and 4.5 miles below Boney Falls shows the same fluctuations in water temperature observed downstream at Cornell, with smaller daily fluctuations.

Linear trend plots of the temperature data also show a better correlation between atmospheric temperature and the temperature in the Escanaba River at Cornell. This indicates that environmental factors other than the temperature of water released during augmentation from Boney Falls have a greater influence on the downstream thermal regime of the Escanaba River.

To illustrate this point, data from August 7th through the 17th of 2003 has been plotted for the Karas Lodge, Hunter's Brook, and Cornell monitoring locations. Augmentation was occurring for 205 of the 264 hours during this period. The graphs show only a slight upward trend in the tailrace water temperature of Boney Falls, while both the air and the downstream temperatures show a more significant upward trend that increases with distance from Boney Falls. If augmentation had a significant effect on the thermal regime of the river, the trends at the downstream monitoring station should be similar to the trend in the tailrace. However, it appears that air or other environmental factors have a greater influence on the water temperature. A similar plot of data from July 14th to July 19th also shows the same trend (Boney Falls Tailrace and Cornell station data only. Data was not collected at the Karas Lodge and Hunter's Brook locations during the same time period).

The data collected during the past three monitoring seasons indicates that while the temperature threshold of 26°C is being met in the Boney Falls tailrace, other environmental factors, such as atmospheric temperatures, appear to have a greater influence on the thermal regime of the Escanaba River downstream. While augmentation at Dam No. 4 may influence the thermal profile of the Escanaba River immediately downstream from the Boney Falls (less than 3 miles downstream), the effect of augmentation decreases as the distance from Boney Falls increases. Fewer

deviations from the 26°C threshold temperature were observed at the Karas Lodge and Hunter's Brook monitoring locations, however, more deviations observed at these locations occurred during periods of augmentation rather than during run-of-river operation.

The information presented in this document shows that augmentation does not have a direct impact on the Escanaba River thermal regime downstream of the Boney Falls Dam. Atmospheric or other environmental conditions have a significant effect on water temperature below Boney Falls. Augmentation may help decrease the severity of deviations above the threshold temperature, yet the data indicates that augmentation does not have a significant effect on the thermal regime of the Escanaba River as close as 3 miles downstream of the Boney Falls Dam.

While it does not appear that augmentation has a significant impact on the thermal regime of the Escanaba River, UPPCO proposes to continue the augmentation program, as it may help mitigate high temperatures at downstream locations during periods of low flow and high atmospheric temperature. UPPCO will continue the program following the protocol established in the Order Approving Flow Augmentation Plan, and will continue to notify the MDNR and FWS within 10 days of augmentation events, as the events are deviations from run-of-river operation. UPPCO will be relieved of the annual reporting requirement as described in the Order.

Please review the enclosed information and make any comments or suggestions as soon as possible, but within 30 days of this letter. Should you have any questions or would like more information, please do not hesitate to call Mr. Shawn Puzen at (920) 433-1094 or myself at (920) 433-1833. Thank you for your time and consideration.

Sincerely,

Mark Metcalf

Mark W. Metcalf
Environmental Consultant
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Enc.

The U.S. Fish and Wildlife Service did not respond with Comments