

March 28, 2024

Ministry of the Environment
Sault Ste. Marie Regional Office
70 Foster Drive
Sault Ste. Marie ON
P6A 6V4

Attention: Kristy Mitchell
Water Compliance Officer

Re: 2023 Performance Report for Hornepayne Wastewater Treatment Plant

Dear Ms. Mitchell:

Attached is the 2023 Performance Report for the **Hornepayne Wastewater Treatment Plant** located in The Corporation of the Township of Hornepayne. This report has been completed in accordance with Condition No. 10(6) cited in *Certificate of Approval Number 4306-A8ANUC* dated March 23 2016 and issued to the Township of Hornepayne.

This report was prepared by the Ontario Clean Water Agency on behalf of the Township of Hornepayne based on information kept on record at the Hornepayne Wastewater plant, and, the report covers the period from January 1, 2023 to December 31, 2023.

Should you have any questions or comments in regards to this annual report, please do not hesitate to contact David Hoffman at 807-854-7142.

Yours truly,

Patrick Couture

Patrick Couture
Senior Operations Manager
Ontario Clean Water Agency
Northwestern Ontario Hub

Copy to: Aileen Singh – CAO/Clerk
Hornepayne Wastewater Operators

2023 Annual Report

Hornepayne Wastewater Treatment Plant

Prepared by the Ontario Clean Water Agency



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

**The Corporation of the Township of Hornepayne
Sewage Treatment Plant
2023 Annual Report**

INTRODUCTION

In accordance with the *Certificate of Approval Number 4306-A8ANUC* dated March 23 2016, section 10 (6), the Corporation of the Township of Hornepayne - Hornepayne Sewage Treatment Plant is required to prepare an annual summary. The 2023 annual facility performance report summarizes important information regarding the treatment quality of the effluent wastewater, analytical test results, relevant activities and maintenance operations of the Works. Some of this information was submitted via the quarterly upload of information, but is being presented again as part of the new Annual Report based on the calendar year.

DESCRIPTION OF WORKS

Rated Capacity of Works	1364 m ³ /day
Service Area	Township of Hornepayne
Service Population	980
Effluent Receiver	Little Jackfish River
Major Process	Extended Aeration Plant – Carrousel-type treatment system

EFFLUENT MONITORING AND RECORDING

Analytical tests to monitor the influent and effluent water quality on a monthly basis are conducted by a laboratory audited by the Canadian Association for Environmental Analytical Laboratories (CAEAL) and accredited by the Standards Council of Canada (SCC). Accreditation ensures that the laboratory has acceptable laboratory protocols and test methods in place. It also requires the laboratory to provide evidence and assurances of the proficiency of the analysts performing the test methods. Weekly analysis is performed in-house in order to maintain the process. When these samples are split with the accredited laboratories, it confirms the procedure accuracy of the in-house testing.

SAMPLING REQUIREMENTS

Samples of raw sewage and final effluent from the WWTP shall be collected and analyzed for the following parameters at the indicated frequencies.

Raw Sewage Monitoring – Samples to be collected at the end of the grit channel

Parameters	Sample Type	Frequency
<i>BOD</i> ₅	Composite*	monthly
Total Suspended Solids	Composite*	monthly
Total Phosphorus	Composite*	monthly
Total Kjeldahl Nitrogen (TKN)	Composite*	monthly

* Composite of three grab samples, taken at time intervals of at least six hours over a 24-hour sampling period.

Final Effluent Monitoring - Samples to be collected at the V-notch at the end of the chlorine contact chamber

Parameters	Sample Type	Frequency
<i>CBOD</i> ₅	Composite*	Monthly
Total Suspended Solids	Composite*	Monthly
Total Phosphorus	Composite*	Monthly
Ammonia – Nitrogen(total)	Composite*	Monthly
<i>E. Coli</i>	Grab	Biweekly
Total Chlorine Residual	Grab	Weekly
pH	Grab	Weekly
Temperature	Grab	Weekly

* Composite of three grab samples, taken at time intervals of at least six hours over a 24-hour sampling period.

PLANT PERFORMANCE

Effluent Limits as per C of A, condition 7

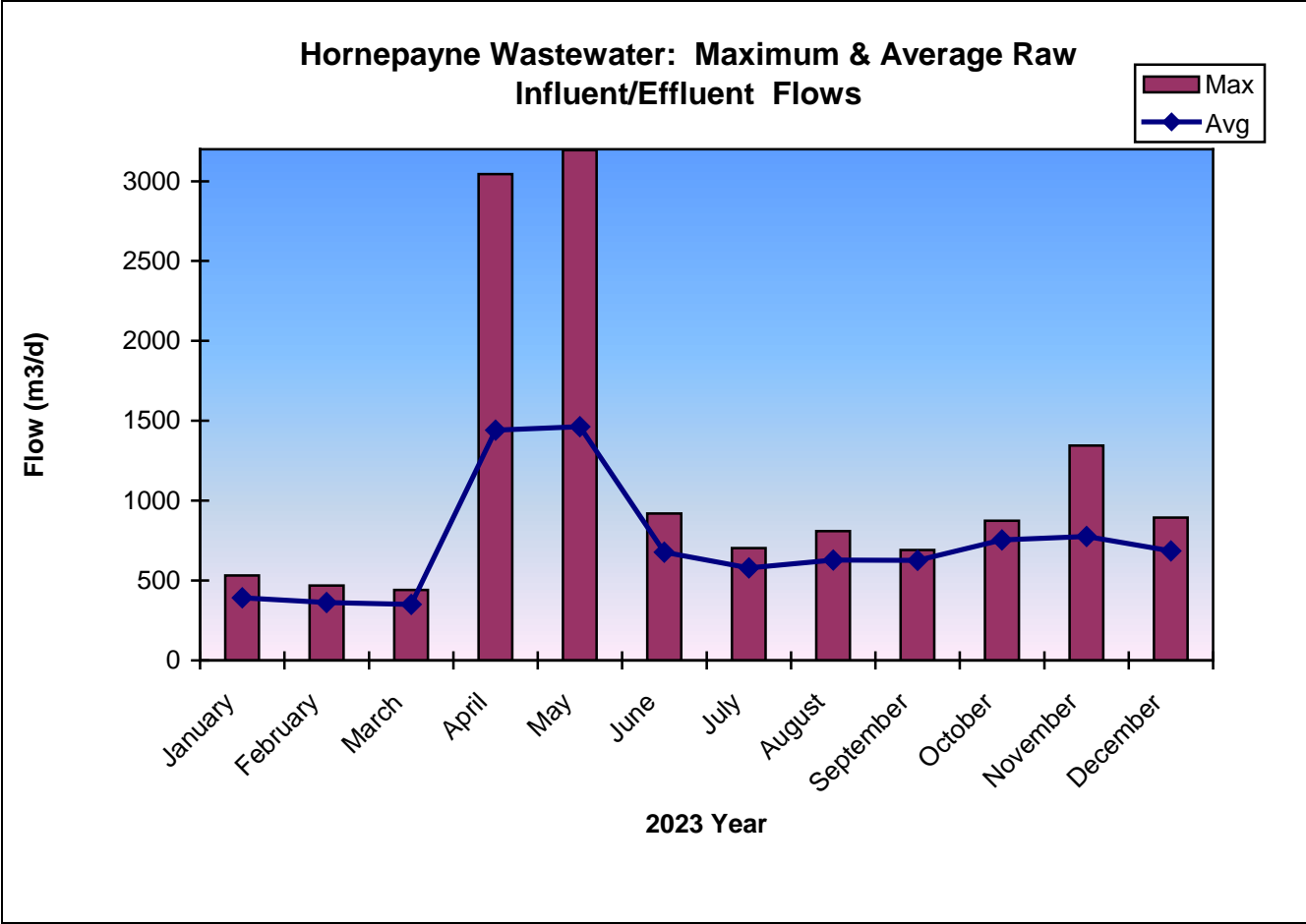
Effluent Parameter	Annual Average Concentration Limit	Average Loading
<i>BOD</i> ₅	25.0 mg/L	34.1 kg/day
Total Suspended Solids	25.0 mg/L	34.1 kg/day
pH	Between 6.0 – 9.5 at all times	
<i>E. Coli</i>	200 organisms/100 ml (monthly <i>Geometric Mean Density</i>)	

Effluent Objectives (best effort) as per C of A, condition 6 (1)

Effluent Parameter	Concentration Objective	Loading Objective
<i>CBOD₅</i>	15.0 mg/L	20.5 kg/day
Total Suspended Solids	15.0 mg/L	20.5 kg/day
<i>E. Coli</i>	150 organisms/100 ml (monthly <i>Geometric Mean Density</i>)	
pH	6.5- 8.5	

EFFLUENT FLOWS

In order to review, at a glance, the performance of the WWTP, a graph has been prepared showing the average and maximum monthly effluent flows for the year; January to December 2023. The total effluent flows for this timeframe report as 266,200 m³, compared to 288,119 m³ for the 2022 calendar year.



EFFLUENT SAMPLING

In the reporting year 2023, *CBOD₅* was analyzed and the average was 1.68 mg/L; this is well within the effluent limits imposed by the *Certificate of Approval* condition 6.1 of 25.0 mg/L. This also was within the objective limits of 15 mg/l

The annual average suspended solids concentrations for the effluent in 2023 was 5.45 mg/L. This parameter is likewise within the annual compliance level of 25.0 mg/L. This parameter has an objective value of 15 mg/l. The objective limit was achieved in 2023.

The plant compliance criteria states; the pH of the effluent shall be maintained between 6.0 and 9.5, inclusive, at all times. The average pH during this period was 7.663 with a high of 9.66 and a low of 6.25. The effluent did not meet the limits or the objective levels of 6.5 to 8.5. The pH values were above the limit of 9.5 on May 24. The values were over the objective for three days in the year (one day in April 17, May 24 and July 6) and one day under the objective on June 28. The effluent met the objectives during the remainder of the year.

The effluent parameter includes a requirement to maintain the monthly geometric mean density of e-coli less than of 200 organisms per 100 ml. In 2023, the maximum monthly geometric mean

density for e-coli was 547.85organisms per 100 ml, the limit was exceeded in July and August 2023. The limit was not achieved in 2023

MAINTENANCE

OCWA maintains a Work Management System (WMS), which is a comprehensive computer based maintenance program that is based on a proactive preventive approach. This includes running checks, weekly, monthly and annual maintenance, as required. A full report on all maintenance carried out in 2023 is available upon request.

There were no modifications made to the Hornepayne Sewage Plant as per Schedule B of the ECA. The Federal Regulation requiring the effluent to be below 0.02 mg/l chlorine residual came into effect in 2021. The facility used a temporary dechlorination system in the effluent channel to meet this regulatory requirement until a permanent solution is engineered and installed. The final effluent samples are collected after the dechlorination.

OPERATIONAL ISSUES

The Federal Regulation requiring the effluent to be below 0.02 mg/l chlorine residual came into effect in 2021. The facility used a temporary dechlorination system in the effluent channel to meet this regulatory requirement until a permanent solution is engineered and installed. The collection of the final effluent samples are collected after the dechlorination.

The operators have determined the correct dosing of the dechlorination chemicals to meet the treatment requirements. The residual values collected after the dechlorination met the Federal requirements. The summary table of the residuals is appended to this report.

The pH was outside of the objective limits in April, June and July. This was due to spring runoff in April. In June the low pH was due to a homeowner pouring chemicals down the drain. In July the pH was high due to a probe out of specifications while performing monthly calibrations/verifications. The pH was exceeded in May due to high spring runoff.

The monthly geometric mean density of e-coli was exceeded in July and August. This was due to issues with the chlorination system. There was a crack in the suction line that was causing the chlorine residual to slowly decline. This issue was fixed and values were back to normal operating range in September.

CALIBRATIONS

The owner shall maintain a continuous flow-measuring device to measure the flow rate within an accuracy of +/- 5% of actual rate of flow within the range of 10% to 100% of the full-scale reading of the measuring devices.

In 2023, calibration of the continuous measuring device was calibrated by Lakeside Process Controls; results attached. The units were within the required accuracy, as outlined in the criteria above.

SLUDGE SUMMARY

Sludge is hauled from the facility to the sludge drying beds site by the Ontario Clean Water Agency. A summary of the sludge hauled for Hornepayne Sewage Treatment Plant is outlined in the following table.

Sludge Volume Hauled in 2023

Month	Total Volume(m3)
January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	80
September	0
October	90
November	50
December	0
Total:	220

The sludge is disposed of in the Hornepayne Sludge Drying Beds. There is no expected change in the sludge handling methods or disposal areas for the WWTP in the coming year.

COMPLAINTS/ENVIRONMENTAL INCIDENT

There were no complaints reported in 2023. One environmental incident was reported in 2023.

While repairing a sanitary sewer line on August 31, water was noticed bubbling out of the ground 150 from the area. The line was broken at this point and was repaired. The incident was reported to SAC under Incident ID 1-3SNDS8. The volume spilled is unknown.

BY-PASS REPORTS

There was no bypasses reported in 2023

Performance Assessment Report 1st January – December 31st 2023

5985 HORNEPAYNE WASTEWATER TREATMENT FACILITY 110001952

	1 / 2023	2 / 2023	3 / 2023	4 / 2023	5 / 2023	6 / 2023	7 / 2023	8 / 2023	9 / 2023	10 / 2023	11 / 2023	12 / 2023	<-Total-->	<-Avg-->	<-Max-->	<-Criteria-->
Flows																
Raw Flow: Total - Influent m ³ /d	12,178.00	10,160.00	10,843.00	43,273.00	45,334.00	20,316.00	17,962.00	19,475.00	18,772.00	23,398.00	23,253.00	21,236.00	266,200.00			0.00
Raw Flow: Avg - Influent m ³ /d	392.84	362.86	349.77	1,442.43	1,462.39	677.20	579.42	628.23	625.73	754.77	775.10	685.03		729.32		
Raw Flow: Max - Influent m ³ /d	532.00	468.00	441.00	3,045.00	3,195.00	919.00	703.00	809.00	692.00	875.00	1,345.00	895.00			3,195.00	0.00
Raw Flow: Count - Influent m ³ /d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			
Eff. Flow: Total - Effluent m ³ /d	12,178.00	10,160.00	10,843.00	43,273.00	45,334.00	20,316.00	17,962.00	19,475.00	18,772.00	23,398.00	23,253.00	21,236.00	266,200.00			0.00
Eff. Flow: Avg - Effluent m ³ /d	392.84	362.86	349.77	1,442.43	1,462.39	677.20	579.42	628.23	625.73	754.77	775.10	685.03		729.32		
Eff. Flow: Max - Effluent m ³ /d	532.00	468.00	441.00	3,045.00	3,195.00	919.00	703.00	809.00	692.00	875.00	1,345.00	895.00			3,195.00	0.00
Eff Flow: Count - Effluent m ³ /d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			
Carbonaceous Biochemical Oxygen Demand: CBOD																
Eff: Avg cBOD5 - Effluent mg/L	2.30	2.50	1.90	2.60	1.20	< 0.50	1.90	1.00	1.20	1.20	1.70	2.20		1.68	2.60	
Eff: # of samples of cBOD5 - Effluent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Loading: cBOD5 - Effluent kg/d	0.904	0.907	0.685	3.750	1.755	< 0.339	1.101	0.628	0.751	0.908	1.318	1.507		1.23	3.75	
Biochemical Oxygen Demand: BOD5																
Raw: Avg BOD5 - Influent mg/L	73.00	71.00	78.00	78.00	13.00	32.00	43.00	56.00	52.00	37.00	41.00	43.00		51.42		0.00
Raw: # of samples of BOD5 - Influent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Total Suspended Solids: TSS																
Raw: Avg TSS - Influent mg/L	34.00	58.00	68.00	62.00	28.00	36.70	70.00	100.00	106.00	65.00	68.00	101.00		66.39	106.00	0.00
Raw: # of samples of TSS - Influent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg TSS - Effluent mg/L	1.00	4.30	2.70	7.00	16.70	4.30	5.30	5.70	4.70	2.70	6.00	5.00		5.45	16.70	
Eff: # of samples of TSS - Effluent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Loading: TSS - Effluent kg/d	0.393	1.560	0.944	10.097	24.422	2.912	3.071	3.581	2.941	2.038	4.651	3.425		3.97	24.42	
Percent Removal: TSS - Influent %	97.06	92.59	96.03	88.71	40.36	88.28	92.43	94.30	95.57	95.85	91.18	95.05		88.95	97.06	0.00
Total Phosphorus: TP																
Raw: Avg TP - Influent mg/L	1.76	1.91	1.57	1.65	0.46	0.97	1.75	2.24	1.67	0.91	1.40	1.41		1.47	2.24	0.00
Raw: # of samples of TP - Influent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg TP - Effluent mg/L	0.52	0.85	1.12	1.10	0.48	0.55	0.94	1.27	0.84	0.56	0.51	0.43		0.76	1.27	
Eff: # of samples of TP - Effluent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Loading: TP - Effluent kg/d	0.203	0.307	0.392	1.587	0.695	0.372	0.542	0.798	0.525	0.421	0.398	0.292		0.56	1.59	
Percent Removal: TP - Influent %	70.63	55.65	28.66	33.33	-4.17	43.40	46.51	43.30	49.76	38.88	63.36	69.79		44.93	70.63	0.00
Nitrogen Series																
Raw: Avg TKN - Influent mg/L	13.00	9.00	12.00	18.00	2.20	8.30	10.00	13.00	9.00	9.60	8.70	12.40		10.43	18.00	0.00
Raw: # of samples of TKN - Influent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg TAN - Effluent mg/L	< 0.01	0.03	0.03	< 0.01	< 0.01	0.10	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	< 0.10	
Eff: # of samples of TAN - Effluent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Loading: TAN - Effluent kg/d	< 0.004	0.011	0.010	< 0.014	< 0.015	< 0.068	< 0.006	< 0.006	< 0.006	< 0.008	< 0.008	< 0.007		< 0.02	< 0.07	
Disinfection																
Eff: GMD E. Coli - Effluent cfu/100mL	27.47	2.83	1.00	19.60	31.98	7.75	329.01	547.65	2.00	2.35	27.71	19.90				
Eff: # of samples of E. Coli - Effluent	3.00	2.00	2.00	2.00	3.00	2.00	3.00	2.00	2.00	3.00	2.00	2.00	28.00			0.00

pH Monthly Process Data Report

De-chlorination Monthly Process Data Report

Analyzer Verification/Calibration Summary

Calibration Certificate 2599

AMS Tag: Hornepayne Final Effluent

Test Equipment					
AMS Tag	Manufacturer	Model	Serial Number	Last Calibration	Calibration Interval:
Fluke Distance Meter	Fluke	416D	0682056623		12 Months

Errors (%)			
Error	Limit	Actual: As Found	Actual: As Left
Maximum	5.0000	-1.6400 (Pass)	(N/A)
Zero	(N/A)	(N/A)	(N/A)
Span	(N/A)	(N/A)	(N/A)
Linearity	(N/A)	(N/A)	(N/A)
Hysteresis	(N/A)	(N/A)	(N/A)

Calibration Results: As Found				
Test Point	Input	Output	Output Error	Output Error (%)
1	13.6000	13.2000	-0.4000	-1.6400

Calibration Results: As Left				
Test Point	Input	Output	Output Error	Output Error (%)

Authorization				
Title	Lakeside Process Controls reliability services			
Signature	Igor Riaboshapkin		Date	06/20/2023
Title				
Signature			Date	

By-Pass Reports – 2023

Environmental Incident Report



System: HORNMEYNE SEWAGE COLLECTION SYSTEM MOE Works: 110001952
 Location: 108 HIGH STREET Receiver: N/A

Start of Incident:		Date: <u>AUGUST 31, 2023</u>	Time: <u>0730</u>
<input checked="" type="checkbox"/> Spill	Details/Cause of Incident: <u>WAVE MARKING REPAIRS TO A SANITARY LINE 700 FEET IN LENGTH, NOTICED</u>		
<input type="checkbox"/> Bypass	<u>WATER BUBBLING OUT OF THE GROUND 150 FEET DOWNSTREAM. EXCAVATED</u>		
<input type="checkbox"/> Other	<u>AND MADE REPAIRS TO BOTH SECTIONS.</u>		
Downstream Users <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Possible effects on receiver, environment or downstream users: <u>NONE</u>		
Chlorination	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Corrective Actions:	<u>REPAIRED SANITARY LINE</u>		
MOECP SAC called	Date: <u>AUGUST 31, 2023</u>	At: <u>1432</u>	Contact: <u>STEPHANIE McBILL</u>
MOH – Health Unit called	Date: <u>AUGUST 31, 2023</u>	At: <u>1440</u>	Contact: <u>KATHLIN McCALL</u>
Operations Manager	Date: <u>AUGUST 31, 2023</u>	At: <u>1425</u>	Contact: <u>PAT COULTURE</u>
Township/Municipality	Date: <u>AUGUST 31, 2023</u>	At: <u>1444</u>	Contact: <u>AILEEN SINGH</u>
	Date:	At:	Contact:
Reference #: <u>1-35NDS8</u>		Operator Reporting Incident: <u>MARK VAN BREDA</u>	

Termination:	Date: <u>AUGUST 31, 2023</u>	Time: <u>1345</u>	Duration: <u>6.25</u> HOURS
Approximate Volume (m ³)	<u>UNKNOWN</u>		
SAC called	Date: <u>AUGUST 31, 2023</u>	at: <u>1432</u>	Contact: <u>STEPHANIE McBILL</u>
Further Actions Required:			
Operator Reporting Termination: <u>MARK VAN BREDA</u>			
MOECP SAC	Tel: 800 268-6060 Fax: 800 268-6061 Email: moe.sac.moe@ontario.ca	Comments	
MOH – Health Unit (after hours)	Tel: 1-800-461-1818 Tel: 705-267-1181 Fax: 705-264-3980 Email: inspections@porcupinehu.on.ca	Comments	
Environment Canada	Fax: 819-420-7382 Attn: Wastewater Program E-mail: Ec.FA-LP-On.ec@canada.ca		

Verbal notifications: MOECP SAC, MOH, Sr. Operations Manager, Client/Owner
 Email completed report: MECP SAC, MOH, Environment & Climate Change Canada, Regional Manager, Sr. Operations Manager, PCTs, Client/Owner, ORO

Calibration Certificate 2599

AMS Tag: Hornepayne Final Effluent

Calibrated at: 2023-06-20 10:18:08 AM

Calibration Result: PASSED

Device Identification	
AMS Tag:	Hornepayne Final Effluent
Device Tag:	
Manufacturer:	Siemens
Model Name:	Sitrans LUT440
Device Identifier:	3190364

Device Calibration Data			
Date/Time Calibrated:	2023-06-20 10:18:08 AM	Max Error Limit:	5.00 % of Span
Technician:	DESKTOP-79S6M3S \Lakeside	Notification Limit:	5.00 % of Span
User:	DESKTOP-79S6M3S \Lakeside	Adjustment Limit:	4.00 % of Span
Ambient Temperature:	20.00 deg C	Calibration Interval:	12 Months
Temperature Standard:	ITS-90	Critical Service:	Yes
Work Order Number:		Input Range:	0.00 - 24.39 cm
Service Reason:	Not Given	Output Range:	0.00 - 24.39 cm
Service Notes:			
Relationship: Linear			

