Operation, Laboratory and Compliance and Innovation Report December 20, 2023

Plant Loading, CSO Report, and Director's Notes

Plant Influent Report:

Biochemical Oxygen Demand, 5-Day (Avg. 29494 lbs/day)

Total Suspended Solids (Avg. 45461 lbs/day)

Average Daily Flow (26.59 million gallons/day)

Maximum Daily Flow (37.37 million gallons/day)

46 percent of design 65 percent of design 30 percent of design

Plant Influent Total Monthly Flow (million gallons) for October 811.48 Estimated Unbilled Total Monthly Flow (million gallons) 173.28 Total Monthly Precipitation (inches) 3.70

Plant Effluent Report:

<u>Parameter</u>	Report Frequency	Permit Limits	<u>Reported</u> <u>Values</u>	Violations
CBOD ₅ , mg/L	Mo./Wk. Avg	20/40	2/2	0
TSS, mg/L	Mo./Wk. Avg	25/45	7/12	0
NH ₃ -N, mg/L	Mo. Avg/Daily Max	1.5/3.0	0.12/0.12	0
DO, mg/L	Mo. Avg/Wk. Avg/Daily Min	6.0/4.5/4.0	7.83/7.55/7.51	0
pH, S.U.	Daily Min/Max	6.0/9.0	7.77/8.47	0
Total Nickel, mg/L	Mo. Avg	0.0381	0.015	0
Cl ₂ Residual, mg/L	Daily Max	0.05	< 0.011	0
Fecal Coliform CFU/100mL	Daily Max	400	NA	NA

CSO Report:

Location	Events	Est. Total Duration of Discharges (hrs.)	Discharge (million gallons)				
Oakland Avenue (Outfall 003)	1	1.1	0.21				
Lincoln Park (Outfall 004)	0	0	0				
McKinley Avenue (Outfall 007)	1	0.9	0.8				
Seventh Ward (Outfall 008)	1	0.5	0.19				

Director's Notes:

Land Application Program:

Land Application has gone well this year with minimal downtime due to weather or breakdowns. District staff have transferred five to six million gallons from the west lagoon and operated the crawler for close to 270 hours.

Compliance Reporting:

In accordance with the requirements of our NPDES permit, the SDD will be submitting the annual Total P Progress Report to IEPA in mid-December.

264 NH2

Chemical Usage During the 2023 Disinfection Season:

			204	INU2					
Chemicals	INF TOT	EFF TOT	TOT	TOT	CL2 TOT	BIS TOT	AVG		
2023	MGD	MGD	MGD	GPD	GPD	GPD	COST/day	Cost/Month	
May	28.87	28.47	31.38	188.10	899.11	474.37	\$3,020.11	\$93,623.50	
June	24.39	24.44	28.15	193.32	925.36	434.26	\$2,967.15	\$89,014.64	
July	27.45	27.39	28.52	212.46	1018.17	502.16	\$3,327.79	\$103,161.36	
Aug	28.30	27.97	28.64	185.27	972.73	497.91	\$3,196.73	\$99,098.62	
Sep	22.40	22.00	23.14	161.13	963.45	357.76	\$2,775.41	\$83,262.23	
Oct	26.18	25.59	26.31	161.31	1027.75	373.70	\$2,922.09	\$90,584.77	
								\$93,124.19	Avg
Avg	26.26	25.98	27.69	183.60	967.76	440.03		\$558,745.12	Sun

For reference the daily averages for 2022 were NH3=189.64, Sodium Hypochlorite= 917.1, Sodium Bisulfite =584.0. The higher Sodium Hypochlorite and lower Sodium Bisulfite numbers indicate that the Hypochlorite was being consumed at a higher rate in 2023 than 2022.

Operations, Laboratory, and Pretreatment Activity Reports - November/December 2023

Operations Activities:

Normal operational activities were conducted as prescribed by standard procedures or in response to conditions within the plant. These include operating, monitoring, and adjusting facility equipment, performing process control testing, records keeping, and coordination with the other departments to realize optimal performance of the Plant.

- 1) Digester #2- Operators have removed all the sludge that they can. Maintenance will finish pumping sludge but have experienced high methane levels in the attic space creating a safety concern. We will pump the remaining sludge out as soon as possible.
- 2) Digester #3- Digester has been put back online after making manufacturer's recommended adjustments. The oil leak reappeared and we are waiting for delivery of the new oil expansion tank.
- 3) Digester # 4 is offline due to a leak in the sludge tubes. After further investigation we have found that the sludge tubes are showing some wear and may need to be replaced. Jarvis has been on site and waiting for parts to make the needed repairs.

4) Operations staff continue to actively address PMs as time, workload, and staff levels allow.

Laboratory Activities:

Routine:

A total of 1,898 analyses were performed in the laboratory during the month of November 2023.

Monitoring of treatment plant, industrial users, and receiving stream samples for compliance purposes and process monitoring continued. Laboratory personnel continued to perform additional background nutrient monitoring to help fully characterize the nutrient loading on the plant.

Non-Routine:

- 1) The SDD laboratory continued to send samples of raw influent twice a week throughout the month of November 2023 for the "COVID-19 in Wastewater" study funded by the Illinois Department of Public Health. A Zoom call was held on November 3, 2023, with the study participants and the researchers to discuss the results of the study thus far.
- 2) Keith Richard attended the Illinois Association of Wastewater Agencies (IAWA) technical meeting at Starved Rock Lodge on November 3, 2023. The topic of discussion was the implications of pending PFAS regulations on POTWs.
- 3) The quarterly NPDES sampling of the influent, effluent, and sludge to Wyckles was conducted during the second week of November 2023.
- 4) The SDD laboratory analyzed two stormwater samples during November 2023 for the Lake Decatur Watershed monitoring study. The SDD is providing in-kind laboratory analysis of samples collected at the study's three monitoring sites after significant storm events.
- 5) Keith Richard gave tours of the plant to two Millikin University microbiology classes on November 8, 2023.
- 6) Keith Richard hosted the quarterly meeting of the Illinois Water Environment Association (IWEA) Laboratory Committee via Zoom on November 9, 2023. The purpose of the meeting was to plan for the committee's upcoming activities including the annual conference in March. Keith continues to serve as the chair of the committee.
- 7) Keith Richard attended a webinar hosted by IWEA titled "Microbiological Monitoring of PAOs and GAOs in Biological Phosphorus Removal Processes" on November 15, 2023. The webinar was very informative and taught microscopic staining techniques that will be helpful in the future to identify phosphorus accumulating organisms (PAOs) in our treatment system.
- 8) Keith Richard, Jennifer Brand, and Tishia Greve participated in the "Walk the Walk" event hosted by Dove-Homeward Bound on November 17, 2023.

Pretreatment Activities:

Pretreatment - General Activities:

- 1) Pretreatment personnel monitored ten commercial and industrial users (IU) during November 2023. Nine industry site inspections took place during November.
- 2) A permit renewal application was received from **HR Ewell.**
- 3) There was one wastehauler permit issued this month to **Environmental Works**.

Pretreatment Ordinance - Verbal Notices:

The SDD issued a total of 4 Verbal Notices to **Primient, ADM,** and **Caterpillar** in November 2023:

- 1. 11/6/2023 **Primient** was issued a verbal notice with a \$1,000 fine for violating their pH limits for an hour and 45 minutes on 11/3/2023.
- 2. 11/6/2023 **Primient** was issued a verbal notice with a \$1,000 fine for violating their sulfides limit of 0.34 mg/L
- 3. 11/20/2023 **Caterpillar** was issued a verbal notice with no fine due for an excursion from their 4.68 mg/L Phenol limit.
- 4. 11/21/2023 **ADM** was issued a verbal notice with a \$1,000 fine for an excursion from their FOG limit from the West Plant

Pretreatment Ordinance - Warning Notices (WN):

No Warning Notices were issued during November 2023.

Pretreatment Ordinance - Notices of Violation (NOV):

No Notices of Violation were issued during November 2023.

Pretreatment Ordinance - Executive Orders:

No Executive Orders were issued during November 2023.

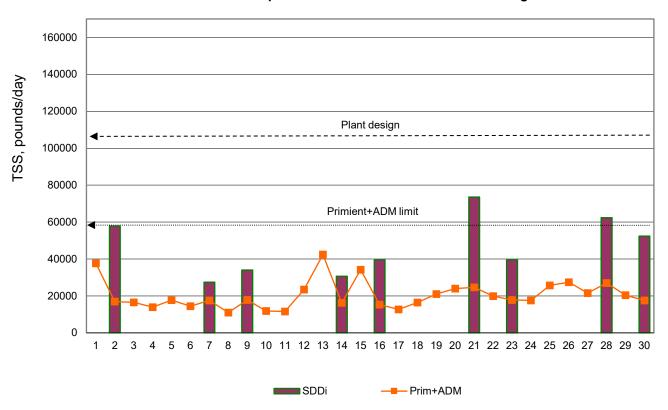
Pretreatment Ordinance - Penalty Assessments:

The following industrial penalties were assessed for November 2023:

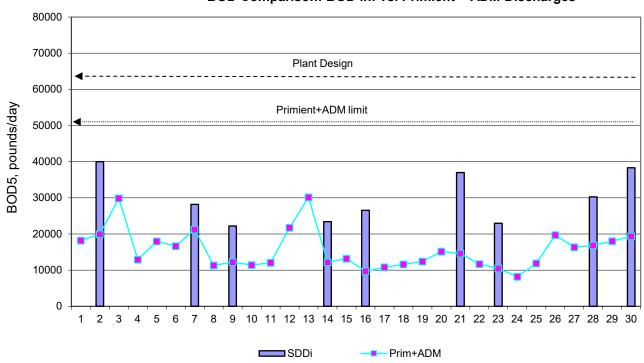
1) Primient \$2,000 2) ADM \$1,000

Plant Operating Graphs:

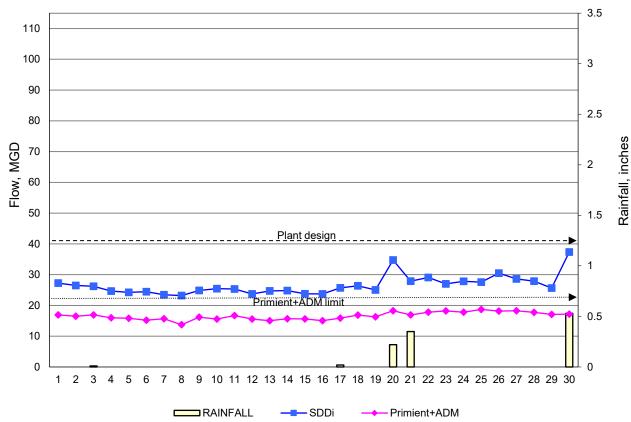
TSS Comparison: SDD Inf Primient+ADM Discharges



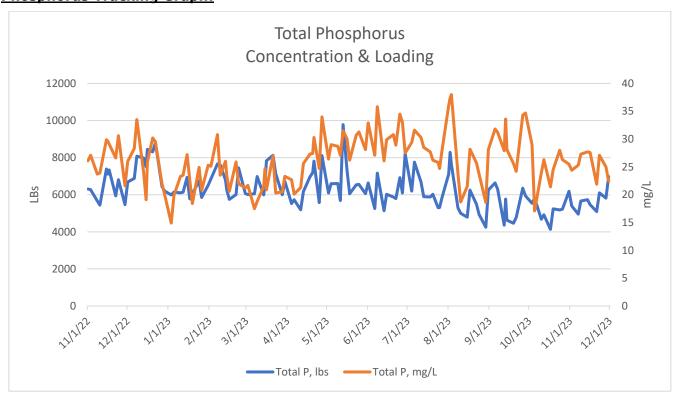
BOD Comparison: BOD Inf vs. Primient + ADM Discharges





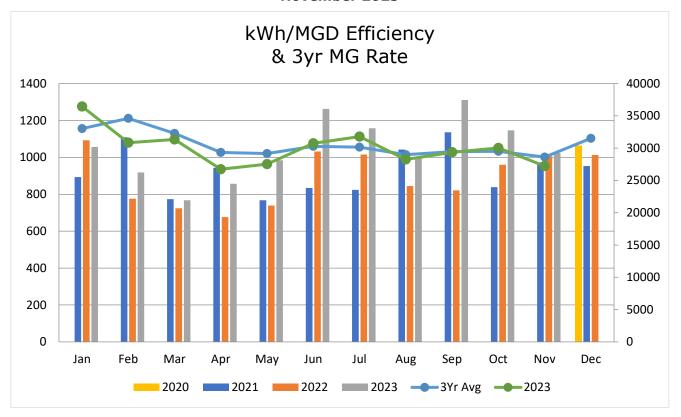


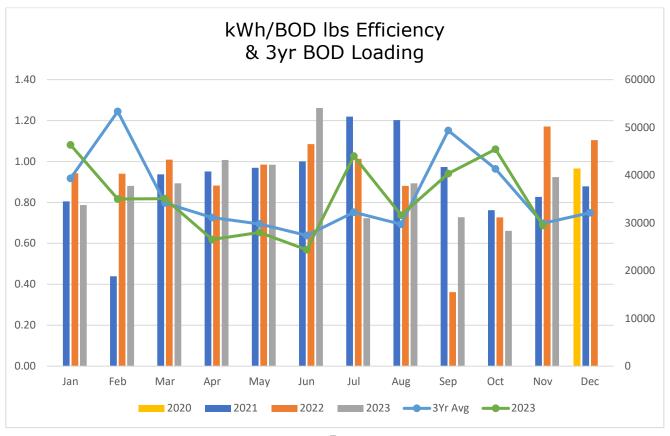
Phosphorus Tracking Graph:



Plant Efficiency Graphs:

November 2023





Sanitary District of Decatur Nutrient Program Management Report

December 20, 2023

During the month of November District personnel attended meetings with members of the Black & Veatch Team to affect progress in nutrient reduction planning and activities.

Currently, activities continue to surround the gathering and sharing of data and information so that all parties can assist in how to move the projects forward as efficiently as possible. In the month of November, the District continued to gather and forward all requested industrial special sampling lab results and plant performance data as requested by the B&V.

B&V has continued the development of their full facility model, continued to develop aged infrastructure evaluation including reviewing evaluation with District staff. In addition, B&V continued to assistance with construction phase services of the Frac Tank Pilot Study including leading the construction progress meetings.

Below you will find a list of the actual meetings conducted in chronological order. The information covers the subject, date, and agenda items of each meeting. Additional information related to any of these meetings or specific agenda items can be supplied to the Board upon request including meeting minutes and documentation used during the meeting as it is all being stored as part of the permanent record.

Nutrient Reduction Program Meetings Conducted during November 2023

<u>Subject</u>	<u>Date</u>	<u>Agenda</u> Items
Nutrient Program Management Bi-weekly Meeting	11/08/2023	Objective: Provided Status Update on Program Tasks 1. Frac Tank Pilot 2. Power BI 3. Pretreatment Program Update 4. PDOP/Annual Progress Report 5. Watershed Services 6. Aging Infrastructure 7. WRRF Upgrade Plan
Fermentation Reactor Pilot Construction Progress Meeting	11/09/2023	 Submittal Status Status of Owner Supplied Equipment Request for Information Work Change Directive / Change Orders Pay Applications Construction Schedule/Activities Additional Questions / Discussion Next Meeting
Aging Infrastructure Workshop	11/14/2023	Objective: Review and Discuss the Aging Infrastructure Evaluation with District Staff
Fermentation Reactor Pilot Construction Progress Meeting	11/21/2023	 Submittal Status Status of Owner Supplied Equipment Request for Information Work Change Directive / Change Orders Pay Applications Construction Schedule/Activities Additional Questions / Discussion Next Meeting

<u>Subject</u>	<u>Date</u>	Agenda <u>Items</u>
Nutrient Program Management Bi-weekly Meeting		Objective: Provided Status Update on Program Tasks 1. Frac Tank Pilot 2. Power BI 3. Pretreatment Program Update 4. PDOP/Annual Progress Report 5. Watershed Services 6. Aging Infrastructure 7. WRRF Upgrade Plan

Sanitary District of Decatur Watershed Management Report

December 20, 2023

During the month of November District personnel attended meetings with members of the Black & Veatch and Geosyntec Teams to affect progress in meeting the NARP requirements as listed in the NPDES permit as well as moving forward on the formation of a future watershed workgroup for the Middle Sangamon River.

Recent activities pertained to items necessary to complete the NARP Study. Foremost in these efforts included Geosyntec continuing their Instream modeling efforts and the completion of baseline scenarios as well as potential watershed management scenarios and alternatives. This month focused on the review of the model and alternative scenarios while receiving District feedback.

Below you will find a list of the meetings conducted. The information covers the subject, date, and agenda items of each meeting. Black & Veatch provided a written summary. Additional information related to any of these items can be supplied to the Board upon request including meeting minutes and documentation used during the meeting as it is all being stored as part of the permanent record.

Watershed Management Meetings Conducted during November 2023

Subject	<u>Date</u>	<u>Agenda</u> <u>Items</u>
Instream Model Scenario Discussion		Objective: Geosyntec presented/reviewed the initial results of the baseline and alternative scenarios of the Instream Model and discussed baseline scenarios.
Watershed Services Bi-weekly Meeting	11/15/2023	Objective: Provided Status Update on Watershed Services Tasks
Instream Model Final Scenario Discussion	, ,	Objective: Geosyntec presented/reviewed the results of the final scenarios and further determine if there are sufficient scenarios to address concerns.



December 5, 2023

Sanitary District of Decatur (SDD) 501 Dipper Lane Decatur, IL 62522 Nutrient Program Manager BV Project No. 411502

Attention: Don Miller, P.E., Director of Engineering

Subject: SDD Nutrient Program Management

November Monthly Progress Update (November 1, 2023 – November 30, 2023)

Dear Mr. Miller:

This letter summarizes the work associated to the SDD Nutrient Program Management project for services from November 1, 2023, through November 30, 2023.

- 1. Program Management, Administration, and Coordination
 - Conducted bi-weekly program conference calls to update progress and discuss key issues
 - Provided Monthly Project Update.
 - Provided ongoing management of the project including program management, preparation/monitoring of the program schedule and budget as well as program administrative duties.
 - Updated Power BI dashboard with most recent plant monitoring data.
- 2. Pretreatment Program Update
 - Continued to evaluate special sampling data
 - Continued to update the full facility process model with the industrial special sampling results.
 - Completed incorporation review comments to finalize the Industrial Pretreatment Analysis Report.
- 3. Phosphorus Discharge and Optimization Plan (PDOP)
 - No Services were completed this period.
- 4. Watershed Support Services
 - Conducted bi-weekly progress update meeting.
 - Geosyntec continued to refine the Instream Model providing a review summary of the results of baseline and alternative scenarios of the Instream model.
 - Geosyntec presented/reviewed the results of the final scenarios and further determine if there are sufficient scenarios to address concerns and determine next steps for model development
 - Continued initial planning efforts for the Watershed Group formation development.
- 5. WRRF Upgrade Plan
 - Aged Infrastructure Evaluation

- i. Completed initial rehabilitation and replacement cost estimates.
- ii. Continued to develop rating score for each asset evaluated to determine criticality and timing of upgrades.
- iii. Completed summarizing structural assessments and incorporate into overall aging infrastructure evaluation.
- iv. Completed Draft Aging Infrastructure Evaluation TM
- v. Led Aging Infrastructure workshop with SDD staff to review the evaluation.
- Plant Facility Evaluation
 - Continued detailed modeling efforts to evaluate and provide whole plant process model simulations related to the alternatives identified for nutrient removal.
 - ii. Continued development of upgrades needed for each unit process to meet nutrient limits including multiple plant loading scenarios which will be considered to identify improvement costs for ADM and Primient.
- 6. Pilot and Demonstration Testing
 - Continued to review for contractor submittals
 - Prepared for and conducted the Construction Progress Meeting with Burdick (Contractor).
 - Continued to prepare Pilot Testing Plan

FRAC TANK PILOT PROJECT S	CHEDULE
MILESTONE/ACTIVITES	DATE
Bi-weekly Construction Progress Meetings	August – December 2023
Early Receipt of Pre-purchased Equipment Primary Sludge Pumps Big Bubble Mixing Frac Tank	November 2023
Substantial Completion (pending equipment delivery times)	December 2023
Final Completion	January 2023

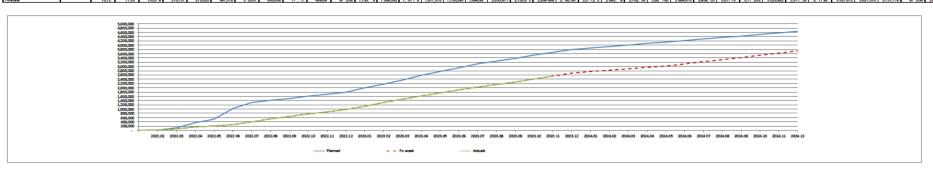
Please feel free to contact me with any questions, comments or if you need additional information. Sincerely,

Diane Grossenheider, P.E. Project Manager, Black & Veatch

Enclosure(s): SDD Nutrient Program Manager Schedule and Anticipated Cost Forecast

SANITARY DISTRICT OF DECATUR - NUTRIENT PROGRAM MANAGEMENT 2022 2024 COST FORECAST BV Project Number: 411602

ncremental		2022 02	2022 03	2022 04	2022 06	2022 06	2022 07	2022 08	2022 09	2022 10	2022 11	2022 12	2023 01	2923 02	2023 03	2023 04	2023 06	2023 06	2023 67	2023 00	2023 09	2023 10	2023 11	2023 12	2024 01	2024 02	2024 03	2024 04	2024 06	2024 06	2024 07	2024 08	2024 09	2024 10	2024 11	2024 12	2022 otal	2023 otal .	024 otal
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	Forecast	16,72	60,831	77,995	5 ,608	61,865	125,365	1 5,679	112,979	118,381	9 ,677	105,5 3	155 812	179,053	152 2 7	155,630	138,917	1 2,510	137,166	115,87	1158 5	136 508	1 1,0	138,207	77,001	62 310	6 ,310	70,383	58 311	96,268	109,890	93,50	100, 98	109,888	93,50	109 862	97 636	1,710,812	10 5,729
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Task 1 Program Mgnt	Actuals	7.905	2,198		3 303	20,16	3.780	20,100	5 103	3 (73	20,169	300	9.208	8.708	21 595	21,203	18.00	15,012	19.376	5.868	5.103	7 388	9.730	17,012	20,303	17 220	17,220	21,032	17 220	17,220	21,000	17,220	17 220	21,030	17,220	19 009		1 3,159	
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Task 3 Phosphorus D scharge	Planned	536	3,756	,59	7,073	25,718	5,977	,881	,879	6,099	,877	,879	678	5,656	5 213		,536	,531	5,665	,533	531	5 668	,533	,531			$\overline{}$		$\overline{}$								7 369	55,052	-
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			61,631			193,891	22.817		18.250	22.817	18.253	18,251			-		*****	29,705	30,850	29.712	29 705	30 850	29,709	29.707	7.597	6.6	6.6	8.059	6. 3	6. 8	8.059		6.6	8.052	6.6		397.102	258,229	
Task Watershed Support	Planned Actuals	6,790	1 800	12,107	28.5 1	193,891	22,617	10,200	10,250	22,617	10,253	10,251	5 363	,569	567	3,760	29,712	29,705	13.980	21,228	9 026	30 850	22,709	29,707	1,591	0, 0	0, 0	0,009	0, 3	0, 0	0,009	0, 0	0, 0	0,052	0, 0	7 30W	309 67	218,61	0 ,25/
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Task 5 Comprehensive WRRF	Actuals	7.879	2.53	53,7 5	16,778	36.223	7 .878	81.756	59, 61	2.065	7.29	28.6 3	60 035	67.250	6535	116.523	71.27	9,1 8	67,288	59.559	.179	76 856	87,793									,			-			765 2 7	
Upgrade Plan	Forecast	7,879	2,53	53,7 5	16,778	36,223	7 ,878	81,756	59, 61	2,065	7,29	28,6 3	60 035	67,250	6535	116,523	71,27	9,1 8	67,288	59,559	,179	76 856	87,793	75,000	31,626	26 835	26,835	33,5 1	26 835	26,833	33,5 1	26,633	26-835	33,5 6	26,833	30 666	91.25	8 0,2 7	350,759
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Task 6 Feasibility Study	Actuals	\blacksquare											$\overline{}$	775	1,128			-		1,120	168																-	,570	
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	Planned	 1		_									\rightarrow	-		$\overline{}$	$\overline{}$	-	$\overline{}$	$\overline{}$	$\overline{}$	-	$\overline{}$	$\overline{}$	$\overline{}$	-	$\overline{}$	$\overline{}$	$\overline{}$	37.958	27 970	27.970	3 960	27.970	27.970	3 962	$\overline{}$	$\overline{}$	219,760
Task & Conceptual Design	Actuals	-															-			-			-		-		-			31,000	21,010	21,010	0 800	27,010	21,010	0 ,500	\rightarrow		210,700
Dev_DD Support	Forecast	1					-					-		-					-										-	37,958	27,970	27,970	3 960	27,970	27,970	3 ,962	-		219,760
														•																									
Cumulative		2022 02	2022 03	2022 04	2022 06	2022 06	2022 07	2022 08	2022 09	2022 10	2022 11	2022 12	2023 01	2023 02	2023 03	2023 04	2023 06	2023 06	2023 07	2023 08	2023 09	2023 10	2023 11	2023 12	2024 01	2024 02	2024 03	2024 04	2024 06	2024 06	2024 07	2024 08	2024 09	2024 10	2024 11	2024 12		2023 otal :	
Planned		13,683	122,0 2		527,897		1 309,590	1, 10,238	1, 96, 57	1 606,182	1 698,00	1 789,82	1,99 , 9	2,169, 82	2,35 321	2,58 ,516	2,765,735	2,937,1 7	3,125,7 2	3,252,21	3,378 675		3,663,237	3 709,702	3,866,9 0	3,932, 77	3 998,01	,079,930	,1 5, 69	,211,006	292,926	,358, 58	, 23 995	505,913	,571, 5	,551,926	1,789,82		651,926
Actuals				155.5 9			397,378	5 3.057	656,036	77 . 17								1,898,80																			97 .636		
Forecast	1	16,72	77.55	155,5 9	210,157	272,023	397,378	5 3,057	656,036	77 . 17	869.09	97 ,536	1,130, 8	1 309 502	1, 61 7 8	1,617,378	1,756,295	1,898,80	2,035,971	2,152,8 5	2,269 689	2, 06,197	25 72 2	2 685, 9	2,762, 50	2.82 760	2 889,070	2,959, 53	3.01776	3,11 ,032	3 223 922	3,317, 26	3, 17 92	3 527,812	3,621,316	3,731,178	97 ,636	2,685, 9	3 731,178



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