

Tuscola County

Mosquito Abatement

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2007

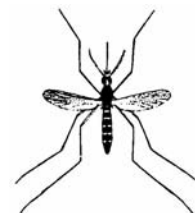
TECHNICAL PROGRAM

Presented to:

Mid-Michigan Mosquito Control Technical Advisory
Committee

Wednesday, March 7, 2007

Developed by:
William Wallace, Director
Richard Colopy, Biologist





INTRODUCTION

Tuscola County Mosquito Abatement began operations in 1997 as a result of a 4-year .65-millage request passed in November 1996. In 2000 this millage renewal passed by over 77%. This department is under the auspices of the Tuscola County Board of Commissioners and the Controller/Administrators Office.

Mosquito “abatement” does not mean elimination but a reduction. By reducing population levels of larvae, pupae and adult mosquitoes, the citizens of this county can better enjoy outdoor activities, and at the same time, have a reduced probability of contracting mosquito borne diseases.

Health of Tuscola County Citizens is of primary concern and thus all efforts of mosquito abatement are primarily focused on this objective.

West Nile Virus (WNV) is likely to be the primary mosquito-borne disease concern in Michigan during 2007. In 2002, there were 577 cases of WNV in Michigan that needed professional medical treatment, and 51 individuals reportedly died from the disease. It is asserted that many more had the disease, which produced lesser symptoms or were asymptomatic. In 2004, one Tuscola County citizen contracted WNV and needed hospitalization. In 2006 there were 54 cases of WNV statewide and seven deaths.

The Program consists of field operations and biological surveillance. Field operations include daytime control of immature mosquitoes in their aquatic habitats (larviciding), and nighttime control of adult mosquitoes in flight (adulticiding). By utilizing an **Integrated Pest Management (I.P.M.) strategy**, nuisance levels of mosquitoes and possible disease carrying populations are reduced with minimal risk to the environment. Employing larviciding procedures (a pro-active approach) and adulticiding procedures (a reactive approach), the citizens of this county receives a responsible, cost-efficient program responsive to their needs.

Biological surveillance includes monitoring mosquito breeding and resting sites to provide data on where mosquitoes are located, their number, and the variety of species. This information is then used to make decisions how to effectively control these mosquitoes. Also, adult mosquitoes are sent to a laboratory to be tested as possible carriers of various encephalitic diseases.

Tuscola County is one of four counties in Michigan with a formal comprehensive mosquito abatement program. A technical advisory committee composed of local and state experts, annually reviews the plans and operations of the programs.

STAFFING

Tuscola County currently employs two full time individuals: a Director and a Biologist. Thirty-three other individuals are planned to be employed on a seasonal basis in 2007. These positions include two Utility Persons, two Foremen, one Biology Technician, two Mechanics, and twenty-six Technicians. All Technicians will become Certified Commercial Applicators. The Certified Applicators Exam will be administered April 10th and April 11th, 2007. Continued employment with TCMA necessitates individuals sufficiently passing this exam. Throughout the application season, staff will be continuously trained and tested on various tasks.



FACTS ABOUT TUSCOLA COUNTY

Located in the heart of Michigan's thumb, Tuscola County is mostly agricultural and dotted by 11 small communities. Tuscola County's name was provided by Henry R. Schoolcraft, who left no record of its meaning. Tuscola County is bordered by Huron County to the north, Bay and Saginaw Counties to the west, Sanilac County to the East and Genesee and Lapeer Counties to the south. It covers 816 square miles (according to Universal Map®-Michigan County Atlas) but is only populated by 58,266 residents (2000 census). With over 6,000 acres of organic farms and more than 26,000 acres of state land (2 *wildlife areas*, and 3 *game areas*), Tuscola County is quite varied.



Tuscola County



FIELD OPERATIONS

SPRING SEASON (APRIL 10 – MAY 12)

Ground Larviciding – The 2007 application season will tentatively start April 10th, 2007 with the larviciding of flooded woodlots in the most populated areas of the county. These include ten villages, one city and congregations of homes. Twenty-six Technicians will undertake this effort supervised by the Foremen. The application will take place Monday through Friday, 8:30am - 4:00pm, April 10th through approximately May 12th. This schedule will undoubtedly include 1-2 weekends. Bacillus thuringiensis israelensis (B.t.i.) on corncob (VectoBac® G) will be the primary larvicide used during this period. Once pupation of Spring Aedes has occurred, the pupicide Golden Bear® 1111 and BVA 2 Oil will be used.

Aerial Larviciding – As in past seasons aerial larviciding should occur in the third or fourth week of April. A total of 800 acres of flooded woodlots will be treated. Treatment will consist of a granular *B.t.i.* – corncob formulation, VectoBac®G. All aerial service work is bid upon and contracted. Contract requirements stipulate aircraft be equipped with Loran®-C grid navigation (at a minimum) to guide pilots during applications.



SUMMER SEASON

May 14 – September 8

Adulticiding - Technicians will conduct adulticiding with hand-held thermal foggers in areas where there has been a request for treatment because of a high number of biting adults. These may include wooded suburban areas. This type of treatment will also include areas that are frequently visited, such as: outdoor activity clubs, golf courses, soccer fields, ball fields, parks, and areas of upcoming special events. Nineteen thermal fogger units are available for this type of treatment utilizing a formulation of malathion (Fyfanon® U.L.V.) in a kerosene carrier. Eighteen handheld U.L.V. units are available to apply Anvil® 2+2 as a cold aerosol fog.



Truck mounted U.L.V.s will be utilized from dusk to approximately 11:00 p.m., Monday – Friday weather permitting. Fourteen units will be available applying Fyfanon® ULV (malathion) at a rate of 4.0 oz. /min. The night Foreman will be applying Anvil® 2+2 at a rate of 7.0 oz/min and Kontrol 4-4 at a rate of 4.1 oz/min to the City of Vassar, and the Villages of Millington, Reese, Caro and Cass City. All material containers for these units will be locked to discourage tampering. We expect a 10-day turnaround throughout the County following pre-designated, computer generated adulticiding routes. Those areas with minimal adult activity will be excluded from truck-mounted adulticiding. This will be determined by the Biology department monitoring CDC light trap, New Jersey light trap, and landing count collections. Occasionally Technicians will be performing landing counts and aspirate mosquitoes.



Multiple use areas such as city parks and playgrounds will be given a clearance of 100 feet. Campgrounds and major parks will be posted informing the public that these sites receive periodic treatment to control mosquitoes. This is in compliance with Regulation 637.



Summer Larviciding = Aedes vexans, in all probability, will continue to be our prime focus of larviciding for nuisance mosquitoes. Larviciding for the reduction of Culex species will take place to reduce the prevalence of West Nile Virus. A major effort to identify new breeding sights such as flooded grasslands, ditches, and marshes, will take place, this our tenth year.



Tires - For control of Aedes triseriatus and Culex larvae in tires, three treatments of Abate 5%® will be made to scrap tire piles throughout the county.



Source Reduction Projects - Tuscola County Mosquito Abatement contributes to the ongoing collection of scrap tires conducted by The Tuscola County Recycle Center.

Ditch Larviciding – The liquid delivery system developed by Keith Kuhlman of Midland County Mosquito Control will be utilized to control larvae produced in roadside ditches after major rains. This system uses an on demand SHURflo® 12-volt on-demand pump to deliver B.t.i. liquid (AquaBac®).



Catchbasins – Larviciding of Catchbasins will be done with VectoLex® CG primarily in the ten villages and the city of Vassar. An extended effort will be made to control these sites, for they breed Culex mosquitoes- a main vector for West Nile Virus. The Biology Department will do monitoring of larval development in these sites.



Biology Operations

Introduction

The 2007 biology agenda will include many of the same objectives as previous years, with a continued emphasis on disease surveillance. It is probable that West Nile Virus (WNV) will be found in Tuscola County this year, as in the past. Other objectives for this year include quality control, equipment calibration, and product research. A heightened awareness and monitoring of a new invasive species of mosquito-Aedes japonicus as a possible vector of encephalitic diseases will take place.



Spring

Vernal ponding in area woodlots will be monitored for larval activity beginning in April. This information will be supplied to the operations department for ground larviciding treatment. Product evaluation of *Bacillus thuringiensis* var. *israelensis* (B.t.i.) on mesh corncob carrier will be conducted prior to field use to insure the receipt of a viable product. Prior to commencement of adulticiding, Mass Median Diameter (MMD) readings will be performed on our fourteen truck mounted U.L.V.'s and all handheld thermal and handheld U.L.V. equipment.

Summer

Disease surveillance will commence in mid-May. Pools of mosquitoes will be sent to Dr. Walker at Michigan State University for



encephalitis testing. These pools sample at risk areas on a weekly basis.

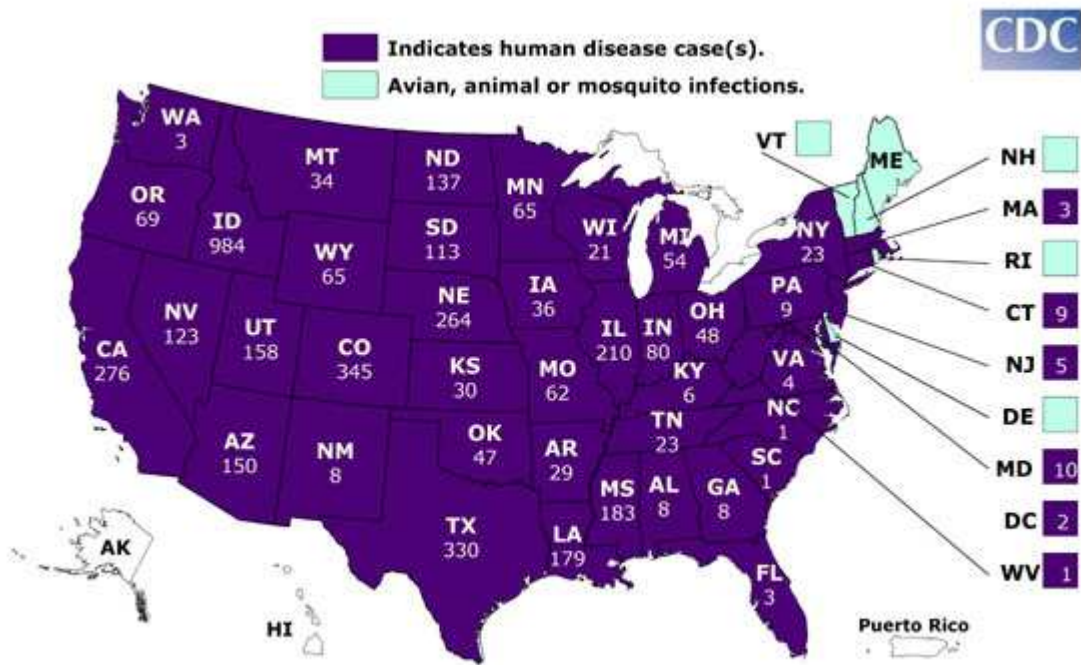
Visits to specific residents with unique problems or questions about our operations will continue. The ongoing refinement of arbovirus contingency planning at the state level will continue, as well as the department's attendance at these conferences in Lansing, should they occur.



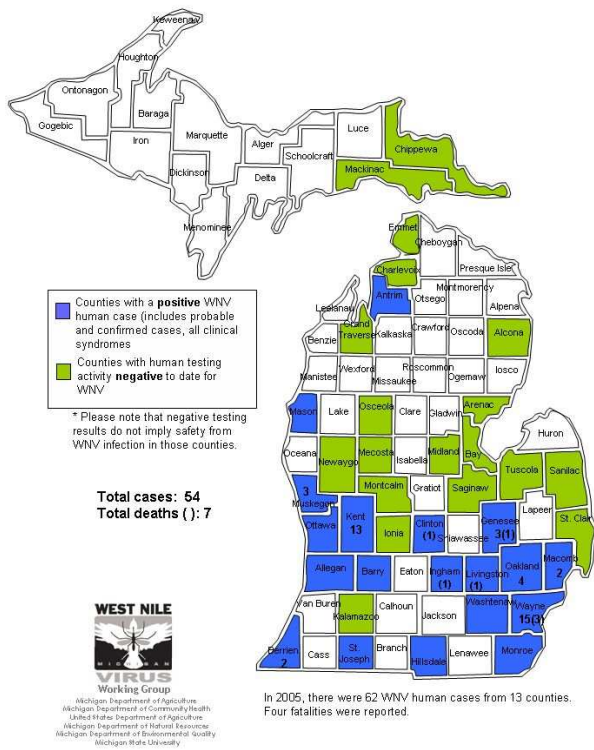
West Nile in Michigan and the United States

In 2001 West Nile Virus was found in Southern Michigan, and continued its expansion thereafter. In 2002 there were 577 cases of WNV in Michigan that needed professional medical treatment, and 51 individuals reportedly died from the disease. It is asserted that many more had the disease, which produced lesser symptoms or were symptomatic. In 2006 there were 54 cases of WNV statewide and seven deaths (One death in Clinton, Genesee, ,Ingham,and Livingston Counties and three deaths in Wayne County)

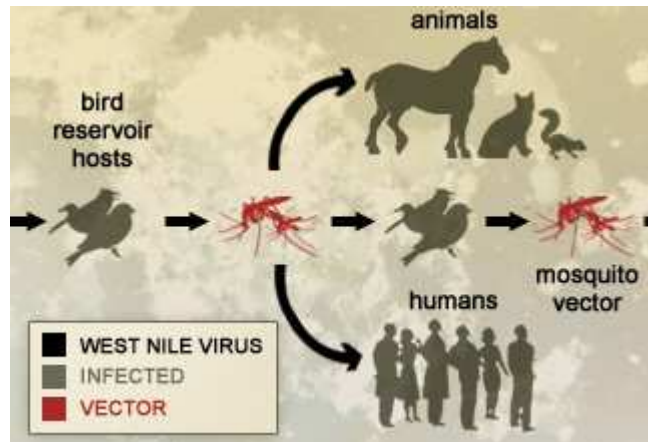
Noticeably, crows and other corvids such as blue jays are very susceptible to WNV. The State of Michigan will accept dead birds (whose death is suspect) from each zip code areas, and test for WNV until a positive bird is found from that zip code. After a positive avian is found the State of Michigan will not accept another bird from that zip code for testing.



**2006 West Nile Virus Activity in the United States
(Reported to CDC as of February 14, 2007*)**



West Nile Virus Transmission Cycle



Tuscola County Mosquito is planning to make residents aware of their need to watch for dead birds in particular crows and blue jays. This will be done by the utilizing the press and technicians when visiting a residence to make the citizens aware of West Nile Virus.

Tuscola County Mosquito Abatement with the Tuscola County Health Department will cooperate in tracking dead bird locations again this year.

An effort will be made to inform horse owners of the risk of West Nile Virus to their horses and an effort will be made to contact these owners in regard to larviciding and adulticiding as was done in the previous year.

Public Outreach A formal Public Outreach program has been submitted to the Michigan Department of Agriculture. It is Tuscola County Mosquito Abatement's wish that all citizens be aware of the potential for serious illness carried by mosquitoes and the products and methods utilized by their county program to protect the public health.

Tuscola County Mosquito Abatement maintains a website to inform citizens about mosquitoes and operations by this department. This website can be visited by going to the main Tuscola County website at: <http://www.tuscolacounty.org/> and then going to the side menu and clicking-"Departments".



2007 BUDGET									
Tuscola County									
Period Ending Date: October 31, 2006									
Account	2004 Actual	2005 Actual	2006 Total Amended Budget	2006 Year-to-date Actual	2006 Projected Actual	2007 Department Request	2007 Committee 1st Draft	2007 Budget	Report: Rbudsta2.rpt
Fund 240 VOTED MOSQUITO FUND									25 of 99
Revenues									
820-402-000 CURRENT & DELINQ TAX	729,207.44	757,495.89	794,000.00	789,852.99	790,000.00	836,000.00	836,000.00	836,000.00	
820-437-000 INDUSTRIAL FACILITY TAX	0.00	3,619.14	4,000.00	3,267.14	4,000.00	4,000.00	4,000.00	4,000.00	
820-665-000 INTEREST EARNED	6,110.84	8,567.73	6,000.00	7,136.86	6,000.00	8,000.00	8,000.00	8,000.00	
820-676-000 REFUNDS & REIMBURSEMENTS	11,406.64	260.00	0.00	0.00	0.00	0.00	0.00	0.00	
Revenues Total	746,724.92	769,942.76	804,000.00	800,256.99	800,000.00	848,000.00	848,000.00	848,000.00	
Expenses									
820-703-000 SALARIES-SUPERVISORY	41,977.00	42,816.80	44,104.00	37,316.40	44,104.00	44,766.00	44,766.00	44,766.00	
820-703-020 HEALTH INSURANCE INCENTIVE	692.28	1,384.56	2,000.00	1,307.64	2,000.00	2,000.00	2,000.00	2,000.00	
820-703-040 UNUSED SICK TIME PAYOUT	0.00	737.06	800.00	878.40	878.00	1,000.00	1,000.00	1,000.00	
820-704-000 SALARIES - FULL TIME	28,422.20	29,794.20	31,181.00	26,607.34	31,595.00	32,489.00	32,489.00	32,489.00	
820-704-020 HEALTH INSURANCE INCENTIVE	1,307.64	615.36	0.00	384.60	0.00	0.00	0.00	0.00	
820-704-030 DISABILITY PLAN	918.00	964.80	946.00	842.12	1,005.00	1,100.00	1,100.00	1,100.00	
820-704-040 UNUSED SICK TIME PAYOUT	0.00	0.00	566.00	630.50	631.00	700.00	700.00	700.00	
820-705-000 SALARIES-SEASONAL	203,174.84	191,129.78	267,335.00	231,000.50	207,000.00	238,960.00	238,960.00	238,960.00	
820-705-010 SEASONAL/SHIFT PREM.	0.00	0.00	0.00	1,524.71	800.00	1,000.00	1,000.00	1,000.00	
820-706-000 SALARIES-OVERTIME	12,703.94	14,294.70	13,852.00	12,345.10	13,852.00	16,000.00	16,000.00	16,000.00	
820-710-000 WORKERS COMPENSATION	1,441.38	1,403.86	1,500.00	1,467.46	1,512.00	1,694.00	1,694.00	1,694.00	
820-711-000 HEALTH & DENTAL INS.	11,303.14	11,249.32	12,600.00	8,526.89	11,159.00	14,000.00	14,000.00	14,000.00	
820-715-000 F.I.C.A.	22,123.50	21,535.83	27,270.00	23,849.07	22,686.00	25,414.00	25,414.00	25,414.00	
820-717-000 LIFE INSURANCE	148.50	169.00	175.00	145.00	145.00	200.00	200.00	200.00	
820-718-000 RETIREMENT	3,871.52	4,459.59	4,000.00	3,880.11	4,643.00	4,765.00	4,765.00	4,765.00	

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2007 BUDGET

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Tuscola County
Period Ending Date: October 31, 2006

Account	2004 Actual	2005 Actual	2006 Total Amended Budget	2006 Year-to-date Actual	2006 Projected Actual	2007 Department Request	2007 Committee 1st Draft	2007 Budget
620-715-000 UNEMPLOYMENT	40,229.78	66,734.71	75,000.00	71,641.86	71,172.00	79,732.00	79,732.00	79,732.00
620-727-000 SUPPLIES, PRINTING, POSTAGE	2,604.20	3,441.96	3,500.00	2,776.65	2,200.00	2,500.00	2,500.00	2,500.00
620-744-000 OTHER SUPPLIES	463.50	1,229.47	1,100.00	96.52	600.00	2,000.00	2,000.00	2,000.00
620-745-000 UNIFORMS & ACCESSORIES	739.74	3,260.78	3,300.00	1,326.72	1,223.00	2,000.00	2,000.00	2,000.00
620-747-000 GAS, OIL, GREASE	18,108.27	20,854.43	20,000.00	33,616.47	20,700.00	30,000.00	30,000.00	30,000.00
620-750-000 ABATEMENT MATERIALS	177,133.50	183,667.84	63,927.00	82,545.28	85,000.00	100,000.00	100,000.00	100,000.00
620-801-000 CONTRACTUAL SERVICES-AERIAL	0.00	0.00	5,940.00	4,000.00	4,000.00	5,000.00	5,000.00	5,000.00
620-803-000 LEGAL/PROF. SERVICES	749.00	372.00	600.00	372.00	500.00	600.00	600.00	600.00
620-809-000 MEMBERSHIPS & SUBSCRIPTIONS	144.00	249.00	300.00	272.00	240.00	300.00	300.00	300.00
620-811-000 JANITORIAL SUPPLIES	639.40	1,341.32	1,000.00	708.25	900.00	1,500.00	1,500.00	1,500.00
620-835-000 HEALTH SERVICES	2,407.00	1,046.72	1,500.00	1,274.00	2,000.00	2,500.00	2,500.00	2,500.00
620-851-000 TELEPHONE	4,209.20	3,738.94	3,900.00	2,843.73	3,800.00	4,000.00	4,000.00	4,000.00
620-851-010 CELLULAR PHONES	621.24	747.66	1,400.00	606.70	750.00	800.00	800.00	800.00
620-854-000 TRAVEL	900.13	480.83	3,000.00	354.12	500.00	500.00	500.00	500.00
620-901-000 ADVERTISING	1,139.68	353.95	1,200.00	443.20	443.00	500.00	500.00	500.00
620-910-000 INSURANCE & BONDS	33,922.70	35,870.10	38,000.00	33,953.15	33,953.00	36,000.00	36,000.00	36,000.00
620-920-000 UTILITIES	4,940.20	5,738.90	5,200.00	5,073.07	6,313.00	6,944.00	6,944.00	6,944.00
620-932-000 EQUIPT., REPAIR & MAINT.	17,817.60	15,539.41	11,000.00	18,482.82	11,000.00	16,000.00	16,000.00	16,000.00
620-934-010 RADIO SERVICE	2,168.25	2,168.25	2,400.00	2,168.25	2,168.00	2,400.00	2,400.00	2,400.00
620-942-000 EQUIPT., RENTAL	123.00	215.00	500.00	30.09	500.00	500.00	500.00	500.00
620-957-000 TRAINING	870.00	510.00	2,500.00	2,250.00	2,250.00	1,200.00	1,200.00	1,200.00
620-964-000 REFUNDS & REBATES	775.17	254.29	300.00	0.00	300.00	300.00	300.00	300.00

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2007 BUDGET

Tuscola County
Fund 240 VOTED MOSQUITO FUND
Department 620 MOSQUITO CONTROL
Period Ending Date: October 31, 2006

Account	2004 Actual	2005 Actual	2006 Total Amended Budget	2006 Year-to-date Actual	2006 Projected Actual	2007 Department Request	2007 Committee 1st Draft	2007 Budget
620-970-000 EQUIPT/CAPITAL OUTLAY	11,372.18	60,617.98	11,000.00	9,926.28	11,000.00	20,000.00	20,000.00	
620-970-010 TRUCKS	18,561.70	18,845.00	20,710.00	20,709.56	20,710.00	25,000.00	25,000.00	
620-970-020 TRUCK ACCESSORIES	4,712.01	153.36	7,000.00	7,913.42	7,890.00	9,000.00	9,000.00	
620-970-030 ULV SPRAYERS	0.00	0.00	28,850.00	28,850.00	28,850.00	11,000.00	11,000.00	
620-970-040 OFFICE FURNITURE	0.00	0.00	400.00	0.00	100.00	400.00	400.00	
620-970-050 OFFICE EQUIPT (COM./FAX/COPIER	3,052.17	4,044.99	3,000.00	2,780.62	2,377.00	15,000.00	15,000.00	
620-970-060 RADIOS	0.00	214.63	1,100.00	209.76	210.00	1,100.00	1,100.00	
620-970-070 SPREADERS/SPRAYERS/FOGGER	7,361.39	7,452.12	10,000.00	11,183.40	11,183.00	15,000.00	15,000.00	
620-970-080 MECHANIC GARAGE TOOLS/EQUIPT	336.18	534.59	500.00	823.61	1,100.00	1,500.00	1,500.00	
620-970-090 LIGHT TRAPS/BIOLOGY SUPPLIES	708.18	1,536.84	1,000.00	562.55	500.00	3,000.00	3,000.00	
620-970-100 FIRE FIGHTING SUPPLIES	0.00	0.00	300.00	0.00	300.00	300.00	300.00	
620-970-110 TRUCK WASH EQUIPT	0.00	58.37	250.00	0.00	250.00	250.00	250.00	
620-970-120 SAFETY EQUIPT	3,046.01	2,750.37	3,000.00	3,399.33	3,500.00	4,000.00	4,000.00	
620-970-130 CONSTRUCTION CHGS FOR OPERATIC	0.00	0.00	1,000.00	1,388.01	2,000.00	2,000.00	2,000.00	
620-970-150 FORK LIFT	0.00	0.00	2,500.00	2,500.00	2,500.00	0.00	0.00	
620-970-160 TIRE CLEAN UP	500.00	500.00	600.00	500.00	500.00	600.00	600.00	
620-999-101 INDIRECT COSTS	28,492.00	37,596.00	39,824.00	39,824.00	39,824.00	38,512.00	38,512.00	
Expenses Total	716,935.32	802,685.07	782,930.00	746,114.46	725,316.00	826,026.00	826,026.00	
Revenues Total	29,789.60	-32,742.31	21,070.00	54,142.53	74,684.00	21,974.00	21,974.00	
Expenses Fund Total	746,724.92	769,942.76	804,000.00	800,256.99	800,000.00	848,000.00	848,000.00	
Net (Rev/Exp)	716,935.32	802,685.07	782,930.00	746,114.46	725,316.00	826,026.00	826,026.00	
	29,789.60	-32,742.31	21,070.00	54,142.53	74,684.00	21,974.00	21,974.00	
YTD Revenues	600,256.99	746,114.46	Current Fund Balance	286,539.19				
242,396.66	+	746,114.46	=	286,539.19				