

FORM 1 GENERAL		U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION Consolidated Permits Program (Read the "General Instructions" before starting.)		I. EPA I.D. NUMBER		T/A		C	
				S					
				F		IL0074705		D	
				1		2		13 14 15	
LABEL ITEMS				PLEASE PLACE LABEL IN THIS SPACE					
I. EPA I.D. NUMBER									
III. FACILITY NAME									
V. FACILITY MAILING ADDRESS									
VI. FACILITY LOCATION									
II. POLLUTANT CHARACTERISTICS				GENERAL INSTRUCTIONS If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.					
INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of <b>bold-faced terms</b> .									
SPECIFIC QUESTIONS				Mark "X"			Mark "X"		
				YES	NO	FORM ATTACHED			
A. Is this facility a <b>publicly owned treatment works</b> which results in a <b>discharge to waters of the U.S.</b> ? (FORM 2A)					X		B. Does or will this facility (either existing or proposed) include a <b>concentrated animal feeding operation</b> or <b>aquatic animal production facility</b> which results in a <b>discharge to waters of the U.S.</b> ? (FORM 2B)		
				16	17	18			
C. Is this a facility which currently results in <b>discharges to waters of the U.S.</b> other than those described in A or B above? (FORM 2C)					X		D. Is this a proposed facility (other than those described in A or B above) which will result in a <b>discharge to waters of the U.S.</b> ? (FORM 2D)		
				22	23	24			
E. Does or will this facility treat, store, or dispose of <b>hazardous wastes</b> ? (FORM 3)					X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		
				28	29	30			
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)					X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		
				34	35	36			
I. Is this facility a proposed <b>stationary source</b> which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)					X		J. Is this facility a proposed <b>stationary source</b> which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		
				40	41	42			
III. NAME OF FACILITY									
C SKIP				Hill Crest Dairy (Formerly New Horizons Dairy)					
1				69					
15 16 - 29 30									
IV. FACILITY CONTACT									
A. NAME & TITLE (last, first, & title)				B. PHONE (area code & no.)					
C 2 Dilsaver, Sam, Member Manager				(309) 992-4021					
15 16				45 46 48 49 51 52- 55					
V. FACILITY MAILING ADDRESS									
A. STREET OR P.O. BOX									
C 3 23318 West Taggart Road									
15 16				45					
B. CITY OR TOWN				C. STATE		D. ZIP CODE			
C 4 Elmwood				IL		61529			
15 16				40 41 42		47 51			
VI. FACILITY LOCATION									
A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER									
C 5 23318 West Taggart Road									
15 16				45					
B. COUNTY NAME									
Peoria									
46				70					
C. CITY OR TOWN				D. STATE		E. ZIP CODE		F. COUNTY CODE (if known)	
C 6 Elmwood				IL		61529			
15 16				40 41 42		47 51		52 -54	

CONTINUED FROM THE FRONT

## VII. SIC CODES (4-digit, in order of priority)

A. FIRST										B. SECOND									
C	7	0	2	4	1	(specify) DAIRY FARM					C	7	(specify)						
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
C. THIRD										D. FOURTH									
C	7	(specify)					C	7	(specify)										
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				

## VIII. OPERATOR INFORMATION

A. NAME															B. Is the name listed in Item VIII-A also the owner? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO									
C	8	HILL CREST DAIRY, LLC															55	56						
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32							
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box: if "Other," specify.)															D. PHONE (area code & no.)									
F = FEDERAL S = STATE P = PRIVATE															M = PUBLIC (other than federal or state) O = OTHER (specify)									
P															(specify)									
56															A (309) 922-4021									
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32							

E. STREET OR P.O. BOX																														
23318 WEST TAGERT ROAD																														
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56

F. CITY OR TOWN																				G. STATE					H. ZIP CODE					IX. INDIAN LAND						
C	B	ELMWOOD																				IL					61529					Is the facility located on Indian lands? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46					

## X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)															D. PSD (Air Emissions from Proposed Sources)																
C	T	I													C	T	I														
9	N														9	P		N/A													
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
B. UIC (Underground Injection of Fluids)															E. OTHER (specify)																
C	T	I	N/A												C	T	I	N/A													
9	U														9																
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
C. RCRA (Hazardous Wastes)															E. OTHER (specify)																
C	T	I	N/A												C	T	I	N/A													
9	R														9																
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

## XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

## XII. NATURE OF BUSINESS (provide a brief description)

EXISTING DAIRY LIVESTOCK FACILITY LOCATED IN PEORIA COUNTY ILLINOIS.

PRODUCES MILK AND LIVESTOCK INCLUDING COWS AND CALVES.

MANURE AND WASTEWATER PRODUCTS ARE ALSO PRODUCED AND A SMALL AMOUNT MAYBE SOLD OR TRANSFERED OFF-SITE.

## XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)															B. SIGNATURE															C. DATE SIGNED									
SAM DILSAVER																														7/28/10									
MEMBER MANAGER																																							

## COMMENTS FOR OFFICIAL USE ONLY

C																															
C																															
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

EPA I.D. NUMBER (copy from Item 1 of Form 1)  
IL0074705

FORM <b>2B</b> NPDES	<b>EPA</b> U.S. ENVIRONMENTAL PROTECTION AGENCY APPLICATIONS FOR PERMIT TO DISCHARGE WASTEWATER CONCENTRATED ANIMAL FEEDING OPERATIONS AND AQUATIC ANIMAL PRODUCTION FACILITIES
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**I. GENERAL INFORMATION** Applying for: Individual Permit ☐ Coverage Under General Permit ☒

A. TYPE OF BUSINESS	B. CONTACT INFORMATION	C. FACILITY OPERATION STATUS
<input checked="" type="checkbox"/> 1. Concentrated Animal Feeding Operation (complete items B, C, D, and section II)  <input type="checkbox"/> 2. Concentrated Aquatic Animal Production Facility (complete items B, C, and section III)	Owner/or Operator Name: HILL CREST DAIRY, LLC Telephone: ( 309 ) 922-4021 Address: 23318 WEST TAGGERT ROAD Facsimile: ( ) City: ELMWOOD State: IL Zip Code: 61529	<input checked="" type="checkbox"/> 1. Existing Facility  <input type="checkbox"/> 2. Proposed Facility

**D. FACILITY INFORMATION**


Name: HILL CREST DAIRY Telephone: ( 309 ) 922-4021  
 Address: 23318 WEST TAGGERT ROAD Facsimile: ( )  
 City: ELMWOOD State: IL Zip Code: 61529  
 County: PEORIA Latitude: 40N - 44 - 30 (d-m-s) Longitude: 89W - 59 - 00 (d-m-s)

If contract operation: Name of Integrator: N/A  
 Address of Integrator: N/A

**II. CONCENTRATED ANIMAL FEEDING OPERATION CHARACTERISTICS**

A. TYPE AND NUMBER OF ANIMALS			B. MANURE, LITTER, AND/OR WASTEWATER PRODUCTION AND USE
1. TYPE	2. ANIMALS		1. How much manure, litter, and wastewater is generated annually by the facility? 4110 tons 20,600,000 gallons 2. If land applied how many acres of land under the control of the applicant are available for applying the CAFOs manure/litter/wastewater? 580 acres 3. How many tons of manure or litter, or gallons of wastewater produced by the CAFO will be transferred annually to other persons? 2200 tons 10,000,000 gallons
	NO. IN OPEN CONFINEMENT	NO. HOUSED UNDER ROOF	
<input checked="" type="checkbox"/> Mature Dairy Cows	0	1510	
<input checked="" type="checkbox"/> Dairy Heifers	0	100	
<input type="checkbox"/> Veal Calves			
<input type="checkbox"/> Cattle (not dairy or veal calves)			
<input type="checkbox"/> Swine (55 lbs. or over)			
<input type="checkbox"/> Swine (under 55 lbs.)			
<input type="checkbox"/> Horses			
<input type="checkbox"/> Sheep or Lambs			
<input type="checkbox"/> Turkeys			
<input type="checkbox"/> Chickens (Broilers)			
<input type="checkbox"/> Chickens (Layers)			
<input type="checkbox"/> Ducks			
<input type="checkbox"/> Other: Specify _____			
3. TOTAL ANIMALS	0	1610	

C. <input checked="" type="checkbox"/> TOPOGRAPHIC MAP			
D. TYPE OF CONTAINMENT, STORAGE AND CAPACITY			
1. Type of Containment	Total Capacity (in gallons)		
<input checked="" type="checkbox"/> Lagoon	45.68 Million Gallons		
<input type="checkbox"/> Holding Pond			
<input type="checkbox"/> Evaporation Pond			
<input type="checkbox"/> Other: Specify _____			
2. Report the total number of acres contributing drainage: <u>580</u> acres			
3. Type of Storage	Total Number of Days	Total Capacity (gallons/tons)	
<input checked="" type="checkbox"/> Anaerobic Lagoon	270	45.68 Million gallons	
<input type="checkbox"/> Storage Lagoon			
<input type="checkbox"/> Evaporation Pond			
<input type="checkbox"/> Aboveground Storage Tanks			
<input type="checkbox"/> Belowground Storage Tanks			
<input type="checkbox"/> Roofed Storage Shed			
<input checked="" type="checkbox"/> Concrete Pad - Stacking	180	2630 Tons	
<input type="checkbox"/> Impervious Soil Pad			
<input type="checkbox"/> Other: Specify _____			
E. NUTRIENT MANAGEMENT PLAN			
<p><b>Note: Effective February 27, 2009, a permit application is not complete until a nutrient management plan is submitted to the Permitting Authority.</b></p> <p>1. Please indicate whether a nutrient management plan has been included with this permit application.    <input checked="" type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p>2. If no, please explain:</p> <p>3. Is a nutrient management plan being implemented for the facility?    <input checked="" type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p>4. The date of the last review or revision of the nutrient management plan. Date: <u>06/15/09</u></p> <p>5. If not land applying, describe alternative use(s) of manure, litter, and/or wastewater:</p>			
F. LAND APPLICATION BEST MANAGEMENT PRACTICES			
<p>Please check any of the following best management practices that are being implemented at the facility to control runoff and protect water quality:</p> <p><input checked="" type="checkbox"/> Buffers    <input checked="" type="checkbox"/> Setbacks    <input checked="" type="checkbox"/> Conservation tillage    <input type="checkbox"/> Constructed wetlands    <input type="checkbox"/> Infiltration field    <input checked="" type="checkbox"/> Grass filter    <input type="checkbox"/> Terrace</p>			

III. CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITY CHARACTERISTICS						
A. For each outfall give the maximum daily flow, maximum 30-day flow, and the long-term average flow.			B. Indicate the total number of ponds, raceways, and similar structures in your facility.			
1. Outfall No.	2. Flow (gallons per day)			1. Ponds	2. Raceways	3. Other
	a. Maximum Daily	b. Maximum 30 Day	c. Long Term Average	C. Provide the name of the receiving water and the source of water used by your facility.		
N/A						
				1. Receiving Water	2. Water Source	
D. List the species of fish or aquatic animals held and fed at your facility. For each species, give the total weight produced by your facility per year in pounds of harvestable weight, and also give the maximum weight present at any one time.						
1. Cold Water Species			2. Warm Water Species			
a. Species	b. Harvestable Weight (pounds)		a. Species	b. Harvestable Weight (pounds)		
	(1) Total Yearly	(2) Maximum		(1) Total Yearly	(2) Maximum	
N/A			N/A			
E. Report the total pounds of food during the calendar month of maximum feeding.			1. Month	2. Pounds of Food		
IV. CERTIFICATION						
<i>I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.</i>						
A. Name and Official Title ( <i>print or type</i> ) SAM DILSAVER, MEMBER MANAGER				B. Telephone ( 309 ) 922-4021		
C. Signature 				D. Date Signed 7/28/10		



PROJECT: Hill Crest Dairy  
PROJECT NO.: 238-04006B  
COMPUTATION BY: JEO DATE: 8/13/10 SH. NO.: 1  
CHECKED BY: JLF DATE: \_\_\_\_\_ OF: 1

**Subject:** Animal Waste Produced

Animal Data												
		Actual		ASAE D384.2				VS		TS		AU
			Weight	Manure	Weight	Manure	Manure					
	Animals	Quantity	lbs	cf/d-a	lbs	cf/d/AU	CF/day	lbs/d/AU	lbs/day	lbs/d/AU	lbs/day	
1	Lact. Cow	1170	1400	2.40	1400	1.71	2808.0	8.50	#####	10.00	16380.0	1638.0
2	Dry Cows	300	1400	1.30	1400	0.93	390.0	8.10	3402.0	9.50	3990.0	420.0
3	Heifers	100	1000	0.78	970	0.80	80.4	7.77	777.0	9.14	914.0	100.0
4	Lact. Cow	40	1400	2.40	1400	1.71	96.0	8.50	476.0	10.00	560.0	56.0
5				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
6				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
7				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
8				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
9				0.00	0	0.00	0.0	0.00	0.0	0.00	0.0	0.0
	Total	1610					3374		18578		21844	2214

Total	1610
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### Existing Population

Rainfall Data									
County, State					Peoria, Illinois				
Precip for storage period					34.2 in				
Annual Lake Evap					34.0 in				
% Evap for storage period					93%				
1 Yr 2 Hr Storm Event					1.48 in				
2 Yr 24 Hr Storm Event					3.02 in				
25 Yr 24 Hr Storm Event					5.3 in				
Storage Period					9.0 Months				
VS Loading Rate					3.75 lb/d*1000 CF				
ODOR Loading Rate					2.27 lb/d*1000 CF				

Rainfall Data (Indiana Only)	
Location	Peoria, Illinois
50 Yr 24 Hr Storm Event	6.1 in
IDEM 50 Yr 24 Hr Storm	6.0 in
Greater of Storm Events	6.1 in

Manure Density	62.40 lb/CF
Soilds Density	45.00 lb/CF

		Location Data																						
Animals	Holding Pond				Covered Stack				Uncovered Stack				Rect. Tank				Circular Tank				Pasture	Settling Basin		
	E12				E1				E9				E8	E7										
1: Lact. Cow	100%																							
2: Dry Cows	95%				5%																			
3: Heifers	95%				5%																			
4: Lact. Cow	100%																							
Parlor																								
Sprinkler																								
Waters																								
Silage leach																								
Other																								
Solid Removal	75%																							
Lagoon treat																								
Runoff	100%																							
25Y Runoff	100%																							
Solid Stored									45%															
Wash Water	100%																							
Flush Water	100%																							
Bedding					20%				80%															
50Y Runoff																								

\*Values calculated above are based on data from the Livestock Waste Facilities Handbook

digestor = Solids destroyed & turned into Biogas/Methane



**Subject:** *Animal Waste Produced*

[illegible]

Facility	Manure	Wash	Flush	Bedding	Runoff	Solids Rem	Solids Sto	Total V
Total CF/d	3010.3	2284.2	321.0	265.5	1574.2	364.1	364.1	7819.3

Annual Manure & Wates Water Volumes										
Facility	Manure	Wash	Flush	Bedding	Runoff	Solids Rem	Solids Sto	Total V		
Total CF	1098776	833721	117159	96921	574558	132884	132884	2854049		

[illegible]

Storage Volumes	Required Vol CF	Required Vol GALLONS	Designed Vol CF	Designed Vol GALLONS	Extra CF
Total	2052433	14663024	2883944	20687995	831511

	AVAILABLE	REQUIRED
PASTURE 1 ACRES		0.0 ac

(FIGURES 0.25 IN COVER ON ENTIRE PASTURE)

Annual Storage Volumes Hauled		
Type	UNITS	Volume
LIQUID	GAL	21,340,162
SOLID	TONS	4,111

APPLICATION INFORMATION					
TYPE	SIZE	UNITS	LOAD/HR	# LOADS	TIME
LIQUID	1000	GAL	60	21341	356
SOLID	440	bu	2	340	170

[illegible]



PROJECT: Hill Crest Dairy  
 PROJECT NO.: 238-04006B  
 COMPUTATION BY: JEO DATE: 8/13/10 SH. NO.: 1  
 CHECKED BY: TUF DATE:            OF: 1

Subject: Animal Waste Produced

Additions Data							
Animals	Wash Gal/day	Flush Gal/day	Bedding				
			Type	Rate lbs/d/AU	Amount lbs/day	Density lb/CF	Amount CF/day
1: Lact. Cow*			SAW DUST	3.00	3510	24	146.25
2: Dry Cows*			STRAW	4.00	1200	14	85.71
3: Heifers*			STRAW	4.00	400	14	28.57
4: Lact. Cow*			SAW DUST	3.00	120	24	5.00
*					0	24	0.00
*					0	0	0.00
*					0	0	0.00
*					0	0	0.00
*					0	0	0.00
Parlor**	12100	2400				0	0.00
Sprinkler**	3615					0	0.00
Waters**	754					0	0.00
Silage leach**	609					0	0.00
Other**						0	0.00
Total	17079				5230		265.54

\*Values calculated above are based on data from the Livestock Waste Facilities Handbook





PROJECT: Hill Crest Dairy  
 PROJECT NO.: 238-04006B  
 COMPUTATION BY: JEO DATE: 8/13/10 SH. NO.: 1  
 CHECKED BY: FLP DATE:            OF: 1

Subject: Waste Water Produced

### Sprinkler System Volumes

Temp Range	# of Days	Duration	Freq	Hr/yr	Nozzle #	# of Nozzles	Press (PSI)	Flow Rate (GPM)	Total Flow (GPM)
80-85	180	3	7	398		304	10	0.25	76
85<	180	3	7	268		304	10	0.25	76

Temp Range	Annual Volume (gal)	Daily Water Volume (gal/day)	% Evap	Annual Volume (gal)	Daily Waste Volume (gal/day)
80-85	777806	4321	50%	388903	2161
85<	523749	2910	50%	261874	1455
Total Volumes		7231			3615

Waters		Days Between Cleaning / Week		Cattle		Water		Plate Cooler	
		Winter	Summer	Type	Head	Wash gal/hd	Feed gal/hd	# milk	
24	110	7	3.5	Dry	400	0	2	70	
		7	3.5	Milking	1210	10.000	2	1.5	
		7	3.5	Total	1610				

Volume Calcs		Volumes (gal/Day)	Waste (winter)	Waste (summer)	Water Usage
Facilities (gal/day)	Feed Mix	3220	0	0	3220
	Plate Cooler	15216	0	0	0
	Cooling	7231	0	3615	7231
	Parlor	12100	12100	12100	12100
	Waterer Cleaning	755	377	754	754.29
Cows (gal/day)	Evap	8372	0	0	8372
	Milk	9801	0	0	9801
	Excreta	24308	24308	24308	24308
Total (gal/day)			36785	40777	65786

Meter Reading  
 Total Spillage (gal/Day) -

\*Values calculated above are based on data from the Livestock Waste Facilities Handbook



PROJECT: Hill Crest Dairy  
 PROJECT NO.: 238-04006B  
 COMPUTATION BY: JEO DATE: 8/13/10 SH. NO.: 1  
 CHECKED BY: TLF DATE:            OF: 1

Subject: Runoff Calculations

### Normal Runoff

Area = 185476

Area = 175149

Area =           

#### Concrete (CN=97)

#### Earth (CN=90)

#### Roof (CN=100)

	Months	R	P	Total CF		Months	R	P	Total CF		Months	R	P	Total CF
	JAN	46	1.37	0		JAN	19	1.37	0		JAN	100	1.37	0
	FEB	39	1.9	0		FEB	10	1.9	0		FEB	100	1.9	0
X	MAR	49	3.06	23175		MAR	17	3.06	7592.7		MAR	100	3.06	0
X	APR	52	4.01	32230		April	23	4.01	13462		April	100	4.01	0
X	May	56	4.79	41460		May	23	4.79	16080		May	100	4.79	0
X	June	60	4.32	40063		June	27	4.32	17024		June	100	4.32	0
X	July	62	4.44	42548		July	29	4.44	18793		July	100	4.44	0
X	AUG	59	3.64	33194		AUG	28	3.64	14876		AUG	100	3.64	0
X	SEPT	61	3.55	33471		SEPT	30	3.55	15544		SEPT	100	3.55	0
X	OCT	57	3.03	26695		OCT	27	3.03	11941		OCT	100	3.03	0
X	NOV	53	3.32	27197		NOV	20	3.32	9691.6		NOV	100	3.32	0
	DEC	45	2.42	0		DEC	16	2.42	0		DEC	100	2.42	0
	Total		34.2	300032		Total			125005		Total			0

Net Normal Ruoff = 425,037 CF

### 25 YR - 24HR Storm Event

#### Concrete (CN=97)

#### Earth (CN=90)

#### Roof (CN=100)

CN	97			CN	90			CN	100		
S	0.31	in		S	1.11	in		S	0.00	in	
I <sub>25</sub>	5.32	in		I <sub>25</sub>	5.32	in		I <sub>25</sub>	5.32	in	
Q <sub>25</sub>	4.97	in		Q <sub>25</sub>	4.19	in		Q <sub>25</sub>	5.32	in	
Vol <sub>25</sub>	76756.88	CF		Vol <sub>25</sub>	61090.59	CF		Vol <sub>25</sub>	0.00	CF	

25yr Storm Event Runoff = 137,847 CF

### Notes

Concrete Areas:

Earthen Areas:

Roofed Areas:



**MAURER & STUTZ, INC.**  
ENGINEERS SURVEYORS

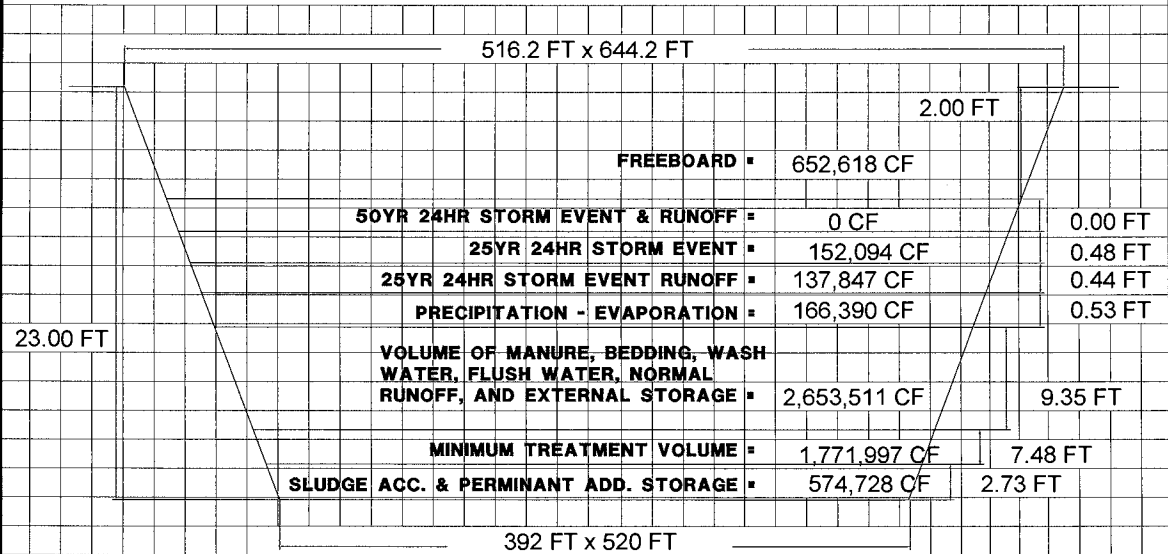
PROJECT: Hill Crest Dairy

PROJECT NO.: 238-04006B

COMPUTATION BY: JEO DATE: 8/13/10 SH. NO.: 1

CHECKED BY: TLP DATE: OF: 1

Subject: Lagoon 1 Design Sheet, E12



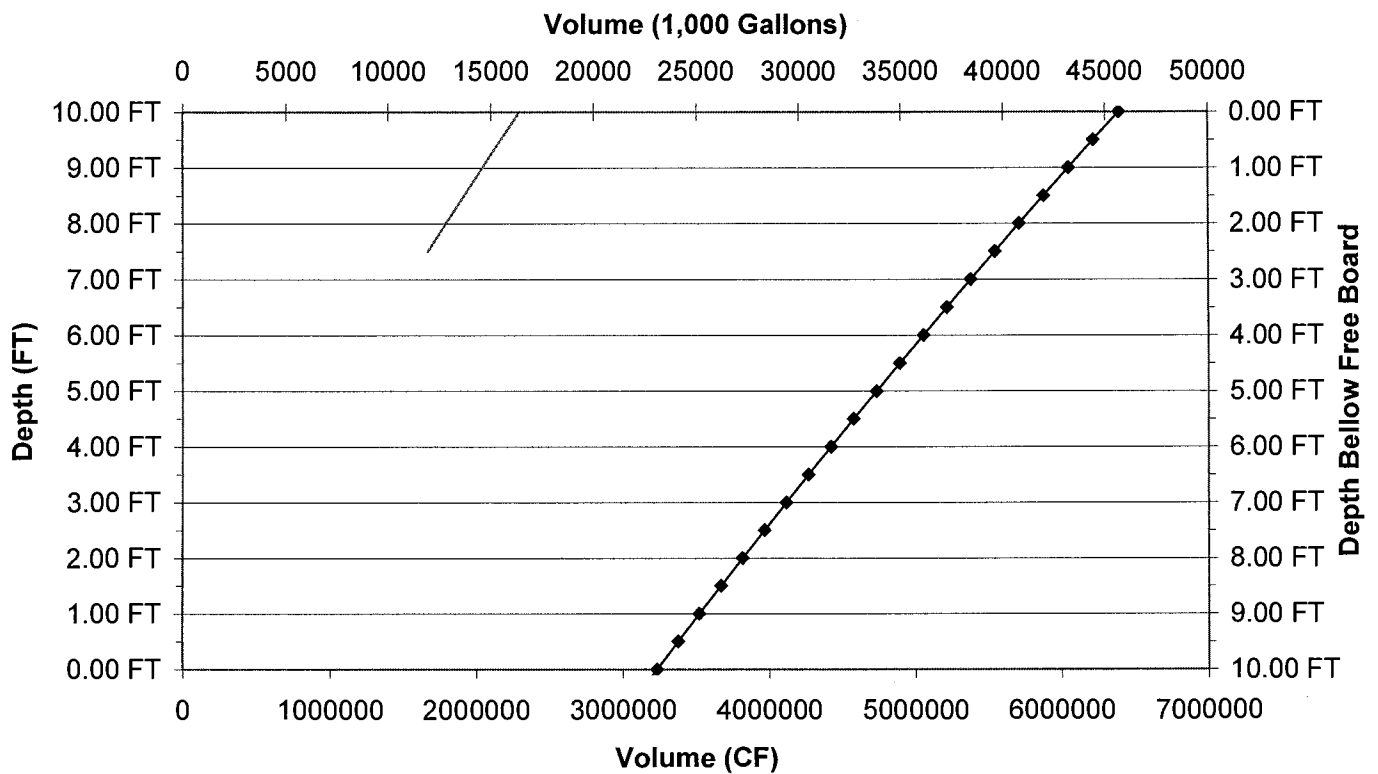
#### EARTHEN STORAGE

TOTAL DEPTH		23.00 FT	Deminsions	
FREEBOARD	2.00 FT		BOTTOM WIDTH	392 FT
RESIDUAL SOLIDS	2.73 FT		BOTTOM LENGTH	520 FT
MINIMUM TREATMENT	7.48 FT		INSIDE SLOPE	3 FT
PRECIP-EVAP DEPTH	0.53 FT		TOP WIDTH	516 FT
25 YR, 24-HR Runoff V	137,847 CF		TOP LENGTH	644 FT
25 YR, 24-HR Runoff D	0.44 FT			
25 YR, 24-HR EFF	0.48 FT		START PUMPING	676.7 FT
50 YR, 24-HR Runoff V	0 CF		STOP PUMPING	665.7 FT
WORKING DEPTH	9.35 FT			
50 YR, 24-HR VOL	0 CF	≈ 0.00 MG	ACTUAL PRECIP	34.2 in
25 YR, 24-HR VOL	152,094 CF	≈ 1.14 MG	ACTUAL EVAP	31.6 in
PRECIP-EVAP VOL	166,390 CF	≈ 1.24 MG	25 YR, 24-HR ACT	5.3 in
WORKING VOLUME	2,653,511 CF	≈ 19.84 MG	50 YR, 24-HR ACT	0.0 in
MINIMUM TREATMENT	1,771,997 CF	≈ 13.25 MG		
RESIDUAL SOLIDS	574,728 CF	≈ 4.30 MG	50 YR, 24-HR Runoff D	0.00 FT
TOTAL RAMP VOL	0 CF	≈ 0.00 MG	50 YR, 24-HR EVENT E	0.00 FT
FREEBOARD	652,618 CF	≈ 4.88 MG		
TOTAL VOLUME	6,109,193 CF	≈ 45.68 MG		

CALCULATE

POND 1 - STAGE STORAGE				
TOTAL DEPTH	VOLUME (CF)	VOLUME (1,000 GALLON)	DEPTH BELOW	VOLUME (1,000 GAL / 1/2 FT)
23.00 FT	6109193	45678	0.00 FT	0.0
22.50 FT	5943707	44441	0.50 FT	1237.3
22.00 FT	5779780	43215	1.00 FT	1225.7
21.50 FT	5617405	42001	1.50 FT	1214.1
21.00 FT	5456575	40799	2.00 FT	1202.5
20.50 FT	5297283	39608	2.50 FT	1191.0
20.00 FT	5139520	38428	3.00 FT	1179.6
19.50 FT	4983280	37260	3.50 FT	1168.2
19.00 FT	4828556	36103	4.00 FT	1156.9
18.50 FT	4675340	34958	4.50 FT	1145.6
18.00 FT	4523625	33823	5.00 FT	1134.4
17.50 FT	4373403	32700	5.50 FT	1123.2
17.00 FT	4224668	31588	6.00 FT	1112.1
16.50 FT	4077412	30487	6.50 FT	1101.0
16.00 FT	3931628	29397	7.00 FT	1090.0
15.50 FT	3787308	28318	7.50 FT	1079.1
15.00 FT	3644445	27250	8.00 FT	1068.2
14.50 FT	3503032	26192	8.50 FT	1057.3
14.00 FT	3363062	25146	9.00 FT	1046.6
13.50 FT	3224527	24110	9.50 FT	1035.8
13.00 FT	3087420	23085	10.00 FT	1025.1
12.50 FT	2951734	22070	10.50 FT	1014.5
12.00 FT	2817462	21066	11.00 FT	1004.0
11.50 FT	2684595	20073	11.50 FT	993.4
11.00 FT	2553128	19090	12.00 FT	983.0
10.50 FT	2423052	18117	12.50 FT	972.6
10.00 FT	2294360	17155	13.00 FT	962.2
9.50 FT	2167045	16203	13.50 FT	951.9
9.00 FT	2041100	15261	14.00 FT	941.7
8.50 FT	1916518	14330	14.50 FT	931.5
8.00 FT	1793290	13408	15.00 FT	921.4
7.50 FT	1671411	12497	15.50 FT	911.3

# **RECTANGULAR HOLDING POND 1** **Storage Curve**



— (CF)

—•— (1,000 GALLON)



PROJECT: Hill Crest Dairy  
 PROJECT NO.: 238-04006B  
 COMPUTATION BY: JEO DATE: 8/13/10 SH. NO.: 1  
 CHECKED BY: TLF DATE:            OF: 1

Subject: Manure Stack Pad Volume

**UNCOVERED STACK PAD 1, E9 - Solids Stack**

	Side 1	Side 2	Side 3	Side 4	Summation
			Match to open	Open Side	
Wall Length	130	130	67	67	
Wall Height	12	12	12	0	
Max Stack Height	12	12	12	12	
Slope of repose	1	1	1	1	
Side Length	0	0	0	67	
Side Calc Ft^3	0	0	0	4824	
Corner Calc	0.00	0.00	0.00	0.00	
	Length	Width	Height		
Top Bulk	0	0	0	0	
Bot Bulk	118	67	12	94872	
			Volume	99696	ft^3
			Area	8710	ft^2

**UNCOVERED STACK PAD 2,**

	Side 1	Side 2	Side 3	Side 4	Summation
			Match to open	Open Side	
Wall Length					
Wall Height				0	
Max Stack Height					
Slope of repose					
Side Length	0	0	0	0	
Side Calc Ft^3	0	0	0	0	
Corner Calc	0.00	0.00	0.00	0.00	
	Length	Width	Height		
Top Bulk	0	0	0	0	
Bot Bulk	0	0	0	0	
			Volume	0	ft^3
			Area	0	ft^2



PROJECT: Hill Crest Dairy  
 PROJECT NO.: 238-04006B  
 COMPUTATION BY: JEO DATE: 8/13/10 SH. NO.: 1  
 CHECKED BY: TLF DATE:            OF: 1

Subject: Manure Stack Pad Volumes

**COVERED STACK PAD 1, E1 - Bedding Pack - Maternity**

	Side 1	Side 2	Side 3	Side 4
			Match to open	Open Side
Wall Length	60	60	120	120
Wall Height	1	1	1	0
Max Stack Height	2.5	2.5	2.5	2.5
Slope of repose	1	1	1	1
Side Length	56	56	117	117
Side Calc Ft <sup>3</sup>	63	63	131.625	365.625
Corner Calc	1.13	1.13	5.21	5.21
	Length	Width	Height	
Top Bulk	56	117	1.5	9828
Bot Bulk	57.5	120	1	6900
			Volume	17364 ft <sup>3</sup>
			Area	7200 ft <sup>2</sup>

**COVERED STACK PAD 2,**

	Side 1	Side 2	Side 3	Side 4
			Match to open	Open Side
Wall Length				
Wall Height				0
Max Stack Height				
Slope of repose				
Side Length	0	0	0	0
Side Calc Ft <sup>3</sup>	0	0	0	0
Corner Calc	0.00	0.00	0.00	0.00
	Length	Width	Height	
Top Bulk	0	0	0	0
Bot Bulk	0	0	0	0
			Volume	0 ft <sup>3</sup>
			Area	0 ft <sup>2</sup>





PROJECT: Hill Crest Dairy  
 PROJECT NO.: 238-04006B  
 COMPUTATION BY: JEO DATE: 8/13/10 SH. NO.: 1  
 CHECKED BY: TLF DATE: OF: 1

Subject: Rectangular Tank Volumes

Covered		X	Precip		Covered		X	Precip	
RECEPTION TANK 1, E8					RECEPTION TANK 2, E7				
TOTAL DEPTH			12.00		TOTAL DEPTH			16.00	
SPACE			2.00		SPACE			2.00	
Bottom not pumpable			1.00		Bottom not pumpable			1.00	
25 YR, 24-HR			0.00		25 YR, 24-HR			0.00	
PRECIP-EVAP			0.00		PRECIP-EVAP			0.00	
WORKING DEPTH			9.00		WORKING DEPTH			13.00	
Inside Width			24.00		Inside Width			57.00	
Inside Length			53.50		Inside Length			153.00	
25YR 24HR Runoff			0.00		25YR 24HR Runoff			0.00	
Working Volume			11556.00		Working Volume			113373	
Total Volume			15408.00		Total Volume			139536.00	
Lid Thickness			0.00		Lid Thickness			0.00	
Wall Thickness			0.00		Wall Thickness			0.00	
Footing Overhang			0.00		Footing Overhang			0.00	
Footing Overhang Thickness			0.00		Footing Overhang Thickness			0.00	
Floor Thickness			0.00		Floor Thickness			0.00	
C Y Footings			0.00		C Y Footings			0.00	
C Y Floor (to Outside of Wall)			0.00		C Y Floor (to Outside of Wall)			0.00	
C Y Walls			0.00		C Y Walls			0.00	
C Y Lid			0.00		C Y Lid			0.00	
CY Total			0.00		CY Total			0.00	
Allowance %			0.0		Allowance %			0.0	
*Concrete work walls cost Est.			0		*Concrete work walls cost Est.			0	
*Concrete flat work cost Est.			0		*Concrete flat work cost Est.			0	
*includes allowance for rebar, waterstop, and labor					*includes allowance for rebar, waterstop, and labor				
			lump sum					lump sum	
Excavation/backfill, perimeter tile and monitoring port					Excavation/backfill, perimeter tile and monitoring port				
Total Estimated cost			\$ -		Total Estimated cost			\$ -	
Allowances %			0		Allowances %			0	
Grand Total Estimated Cost			\$ -		Grand Total Estimated Cost			\$ -	