



รายการอ้างอิง

ภาษาไทย

- ธนิต จินดาวงศ์. การแสวงหาประโยชน์จากสภาพแวดล้อมเพื่อสร้างสภาวะน่าสบาย
และประหยัดพลังงานจากการศึกษา. กรุงเทพมหานคร: คณะสถาปัตยกรรมศาสตร์,
 จุฬาลงกรณ์มหาวิทยาลัย. 2536
- สุรพล พฤษพานิช. การปรับอากาศ. กรุงเทพมหานคร: พิสิกส์เซ็นเตอร์. 2536
- ศิริชัย พงษ์วิชัย. การวิเคราะห์ข้อมูลทางสถิติด้วยคอมพิวเตอร์. พิมพ์ครั้งที่ 6.
 กรุงเทพมหานคร : โรงพิมพ์จุฬาลงกรณ์มหาวิทยาลัย, 2537.

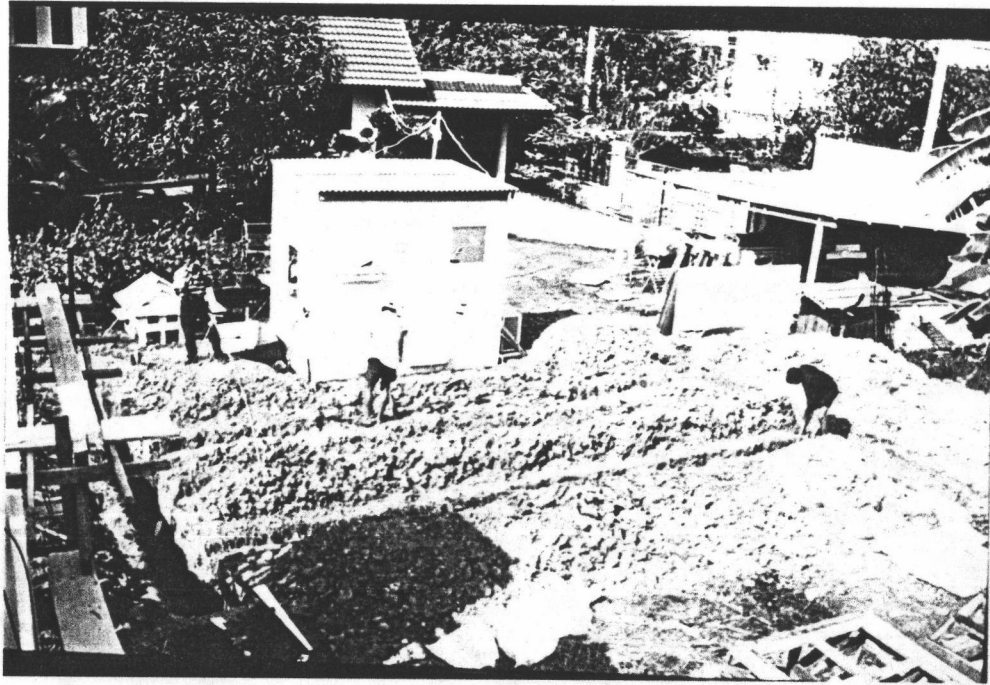
ภาษาอังกฤษ

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 Air-Conditioning Engineers. ASHRAE Fundamentals 1985.
- Fuller Moove. Environment Control System. Singapore:
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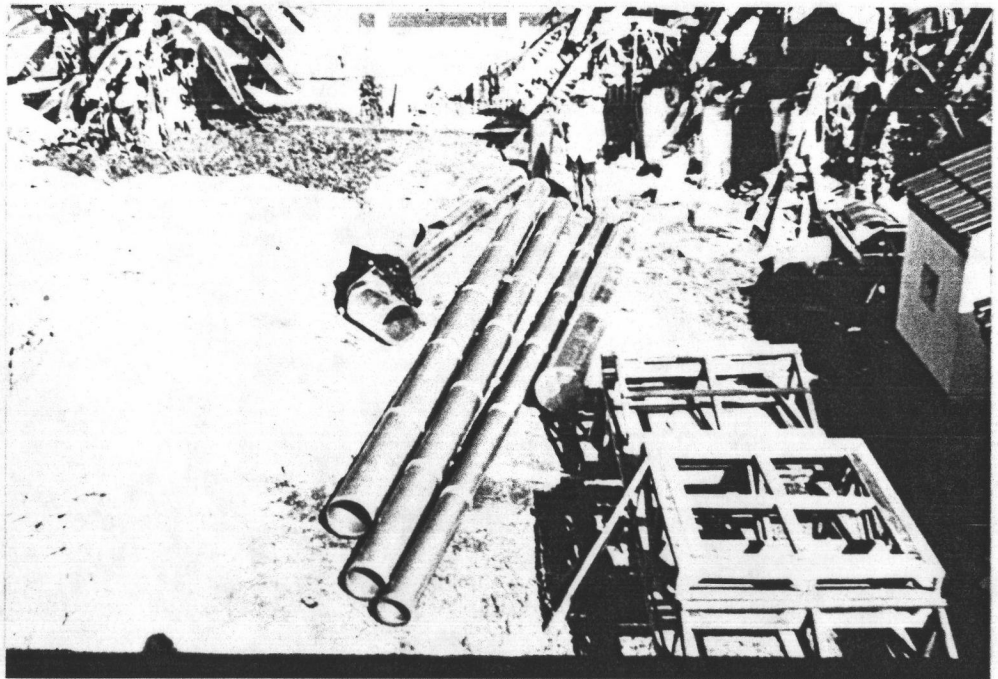
ภาคผนวก

ภาคผนวก ก.

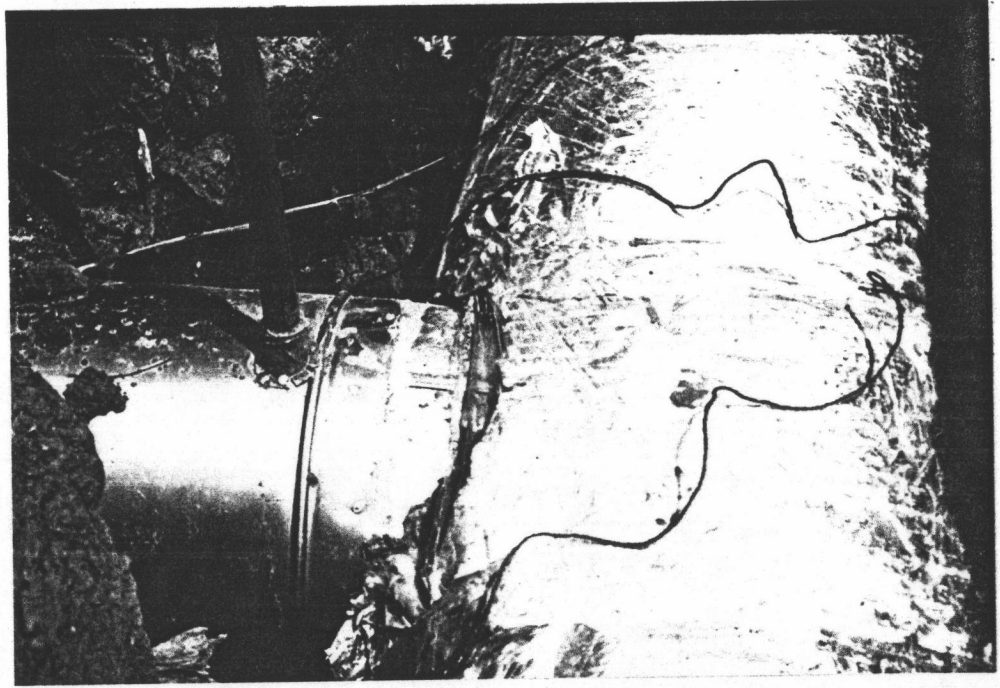
รูป



สภาพโดยทั่ว ๆ ไปของสถานที่ทำการทดลอง เป็นพื้นที่โล่ง มีต้นไม้เป็นกลุ่มเล็กน้อย



ท่อสแตนเลสขนาดต่าง ๆ ที่ใช้ในการทดลองประกอบจากท่อสั้น และขานวรอxy ต่อด้วยซิลิโคนเพื่อป้องกันการรั่วซึมของความชื้น



ลักษณะการต่อเชื่อมระหว่างท่อหลักกับท่อย่อย และการยึดต่อท่อ PVC สำหรับร้อยสายวัดอุณหภูมิ



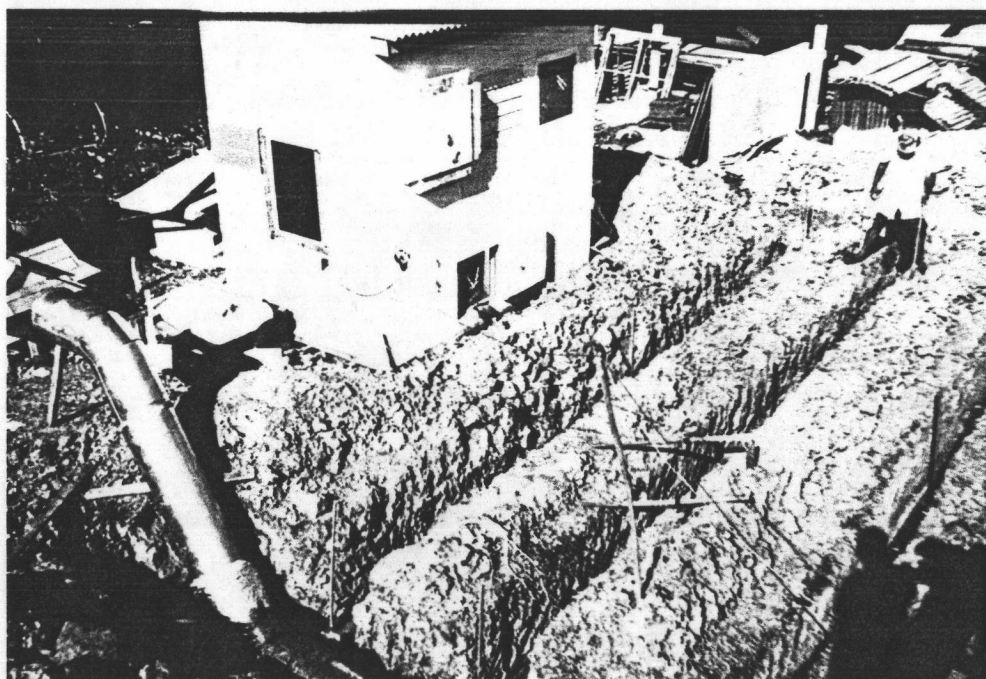
ท่อหลักของระบบจะทำการหุ้มฉนวนกันความร้อน เพื่อควบคุมอุณหภูมิให้คงที่หรือมีการเปลี่ยนแปลงน้อยมากก่อนที่อากาศจะผ่านเข้าสู่ท่อย่อย



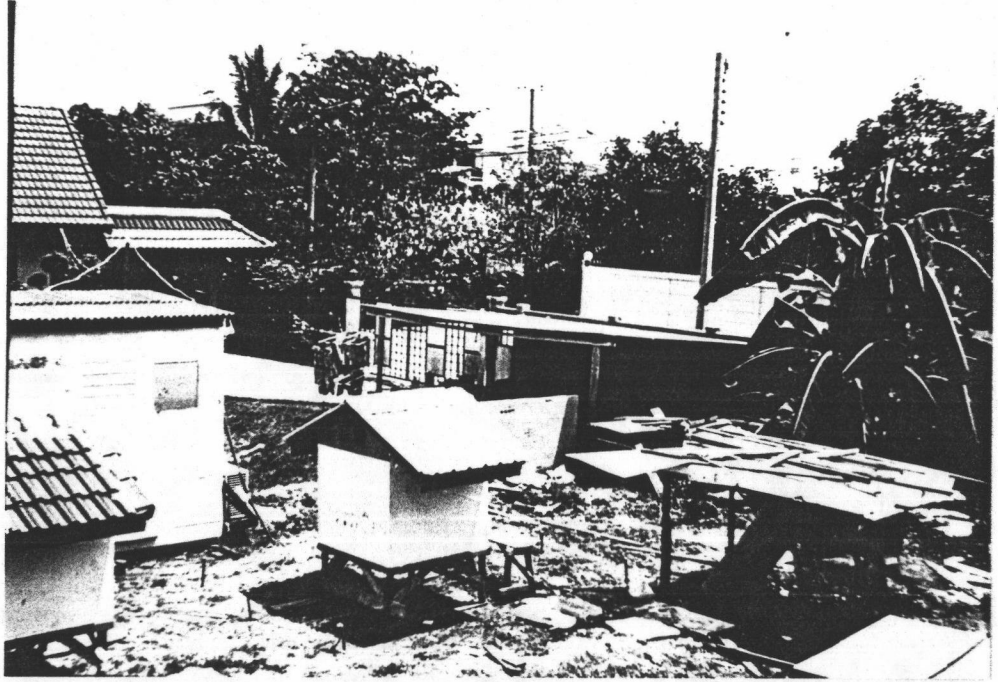
หุ้มฉนวนกันความร้อนไมโครไฟเบอร์ บริเวณท่อหลักที่อยู่พื้นเหนือพื้นดิน เพื่อป้องกันความร้อนจากแสงอาทิตย์



การติดตั้งสายวัดอุณหภูมิดินเพื่อวัดอุณหภูมิดินที่ระดับความลึก 30, 70 และ 110 เซนติเมตร



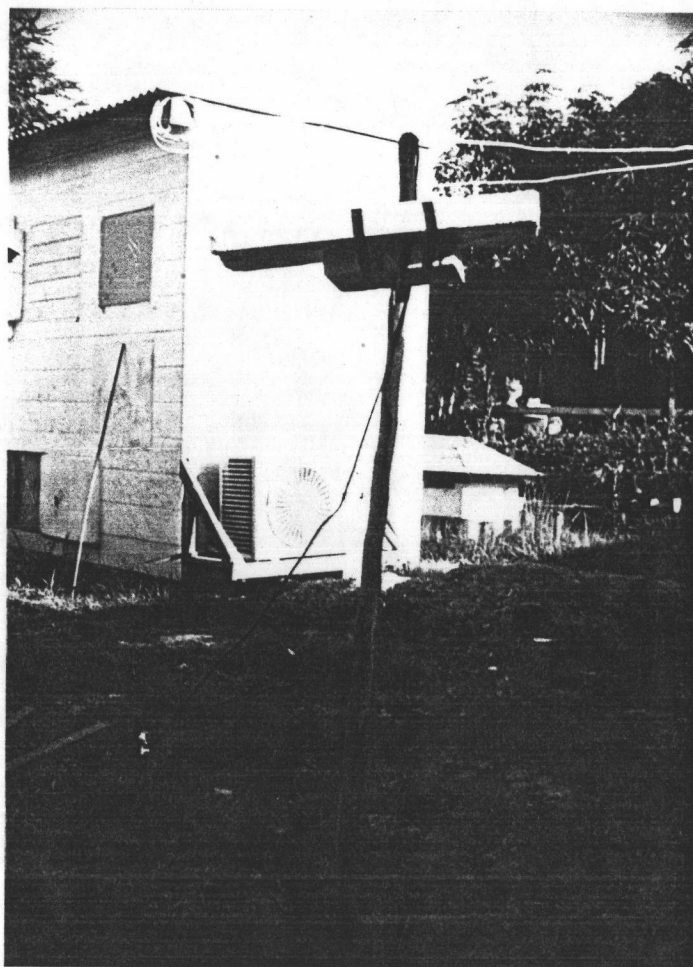
การติดตั้งระบบท่อลงใต้ดิน ก่อนที่จะทำการกลบดิน จะติดตั้งท่อ PVC ขนาด 3/4 นิ้ว ตามตำแหน่งต่าง ๆ ที่ทำการวัดอุณหภูมิอากาศ เพื่อเป็นการง่ายต่อการติดตั้งหรือเปลี่ยนแปลงสายวัดอุณหภูมิ



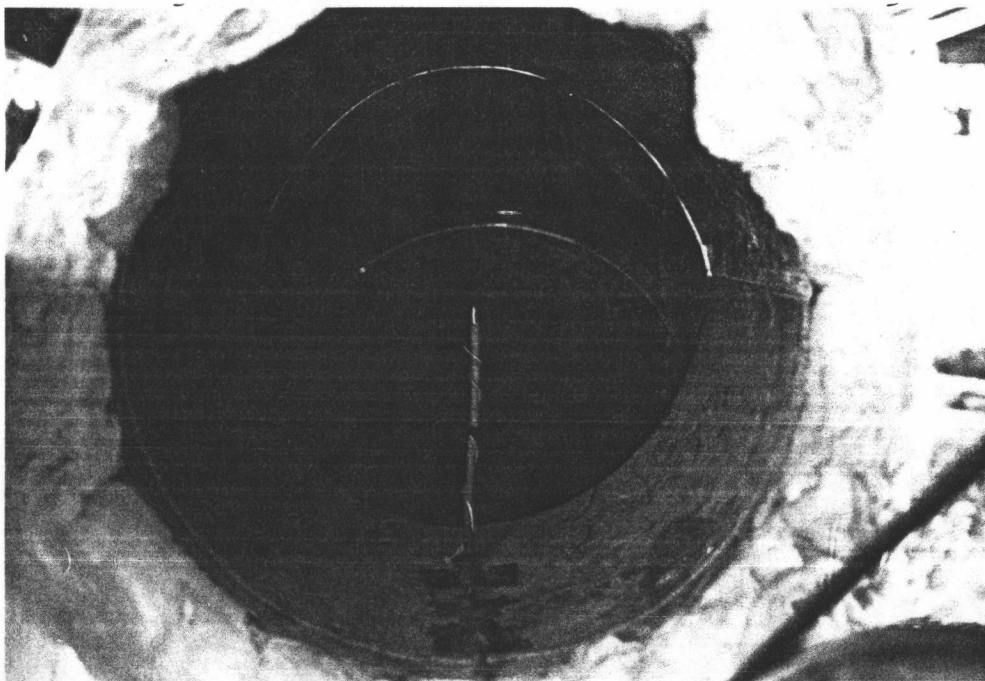
สภาพทั่วไปของสถานที่ที่ทำการทดลองหลังจากกลับดินฝังท่อ เรซินร้อย



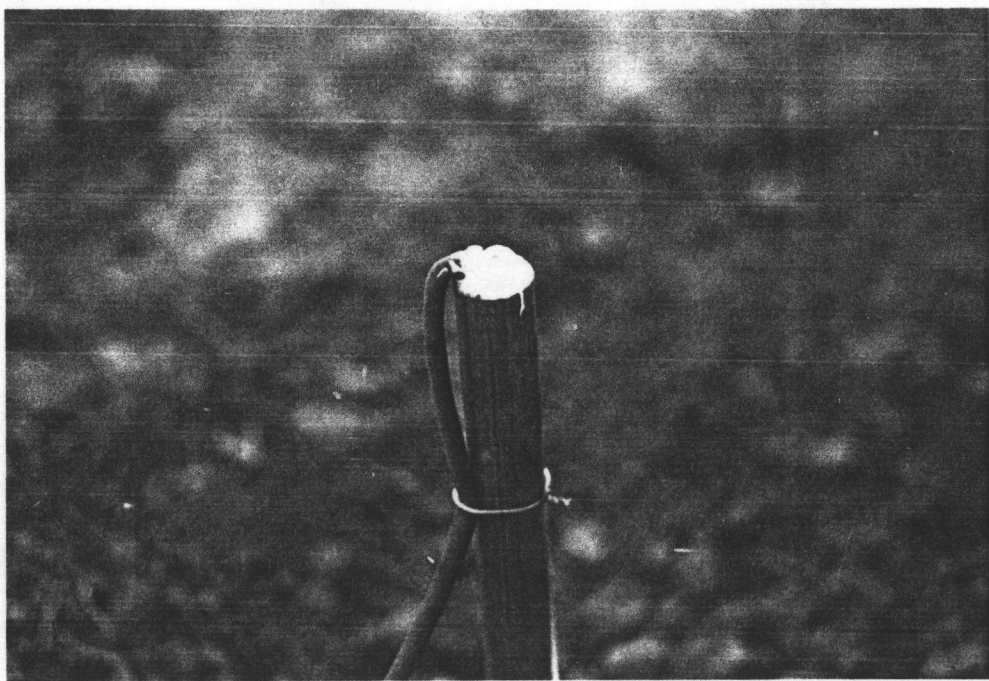
ปลายท่อลม เข้าและปลายท่อลมออก



การแก้ปัญหาเรื่องการแผ่รังสีความร้อนจากผนังจึงย้ายตำแหน่งวัดอุณหภูมิไปไว้
กลางแจ้งและติดตั้งหมอนขนาดใหญ่เพื่อป้องกันแสงแดด



การติดตั้งสายวัดอุณหภูมิที่ปลายท่อลมเข้า



การอุดปากท่อ PVC ด้วยซิลิโคนเพื่อป้องกันการดูดอากาศผ่านท่อ PVC

ภาคผนวก ข.

ตาราง

ตารางที่ 1.1 แสดงผลข้อมูลจากกราฟทดลองช่วงที่ 1 จำนวน 2 ครั้ง

ครั้งที่ 1	เริ่มเก็บข้อมูล	06.00 น.	วันที่ 28	มีนาคม	2537
		ถึง 06.00 น.	วันที่ 30	มีนาคม	2537
ครั้งที่ 2	เริ่มเก็บข้อมูล	18.00 น.	วันที่ 4	เมษายน	2537
		ถึง 18.00 น.	วันที่ 6	เมษายน	2537

ข้อมูลจากการทดลองช่วงที่ 1 ครั้งที่ 1

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
MARCH 28 1994	06:00	24.449	25.207	25.529	25.271	25.803	25.901	25.063	26.191	25.382	27.955	27.923	28.035	23.593	25.931	23.124
		24.223	25.126	25.448	25.142	25.658	25.802	24.933	26.092	26.269	27.754	28.114	28.034	23.431	25.851	22.962
		24.143	24.981	25.384	25.175	25.706	25.803	24.917	25.981	26.269	27.986	27.906	28.018	23.383	25.803	23.027
		24.127	24.951	25.304	25.144	25.659	25.836	24.901	25.997	26.221	27.714	28.067	27.939	23.351	25.755	23.141
		24.192	25.031	25.353	25.079	25.644	25.788	24.871	25.982	26.222	26.052	27.941	28.004	23.449	25.772	23.369
		24.129	24.952	25.274	24.968	25.531	25.692	24.789	25.918	26.143	28.101	27.845	28.021	23.321	25.741	23.224
	07:00	24.274	24.985	25.291	25.082	25.598	25.791	24.841	25.983	26.257	27.957	27.941	28.037	23.501	25.775	23.823
		24.252	25.178	25.404	25.228	25.791	25.854	25.017	26.096	26.321	27.974	28.006	27.974	23.902	25.871	24.936
		25.308	25.646	25.775	25.631	26.049	26.064	25.485	26.338	26.514	28.215	28.215	28.215	25.051	25.209	26.846
		25.854	25.999	26.079	25.918	26.304	26.369	25.789	26.513	26.786	27.926	27.973	28.005	25.821	26.449	27.062
		25.996	26.111	26.094	26.062	26.431	26.366	26.366	25.964	26.641	26.832	28.003	28.035	26.045	26.591	27.639
		26.431	26.253	26.253	26.301	26.591	26.526	26.526	26.205	26.768	26.976	28.034	27.922	27.954	26.591	26.735
08:00	26.799	26.623	26.526	26.607	26.815	26.703	26.478	26.976	27.136	27.986	27.954	27.922	27.136	26.943	28.354	
	27.492	27.011	26.771	27.011	27.187	26.995	26.899	27.332	27.348	28.133	27.941	27.925	28.101	27.187	29.882	
	27.658	27.341	26.941	27.453	27.549	27.101	27.325	27.791	27.517	28.318	27.711	27.998	29.054	27.469	30.705	
	27.947	27.371	27.001	27.467	27.547	27.131	27.386	27.707	27.499	27.947	27.947	27.916	28.956	27.514	30.691	
	28.331	27.838	27.245	27.951	27.999	27.261	27.806	28.223	27.694	27.694	28.015	27.967	30.124	27.806	31.893	
	28.596	27.928	27.352	28.121	28.185	27.336	28.057	28.361	27.769	27.769	27.977	28.009	27.912	30.547	32.866	
09:00	28.806	27.958	27.351	28.118	28.118	27.801	28.071	28.329	27.751	28.071	27.926	27.926	30.089	27.894	32.926	
	29.211	28.361	27.576	28.536	28.409	27.512	28.441	28.632	27.864	27.736	27.945	28.008	31.136	28.121	33.813	
	29.411	28.565	27.587	28.791	28.517	27.574	28.678	28.822	27.942	27.975	27.927	27.927	32.135	28.263	34.507	
	29.417	28.387	27.619	28.659	28.483	27.571	28.531	28.722	27.923	28.162	27.923	27.861	31.275	28.149	34.328	
	29.844	28.679	27.734	28.917	28.631	27.689	28.775	28.857	28.057	28.011	27.929	27.931	32.184	28.297	35.535	
	29.922	28.614	27.751	28.965	28.662	27.657	28.901	28.968	28.009	27.961	27.913	27.881	31.564	28.265	34.652	
10:00	30.111	29.234	28.003	29.378	28.898	27.795	29.202	28.358	28.009	27.751	28.086	27.911	33.381	28.566	35.062	
	29.651	28.535	27.719	28.791	28.584	27.623	28.678	28.839	27.992	28.024	27.992	27.879	31.404	28.201	34.404	
	29.901	29.008	27.889	29.152	28.832	27.761	29.057	29.052	28.194	28.049	27.937	27.937	32.364	28.417	35.568	
	30.123	28.608	27.761	28.928	28.656	27.696	28.911	28.927	28.098	28.001	28.001	27.936	31.761	28.256	35.687	
	30.602	29.233	27.969	29.472	28.931	27.811	29.488	29.201	28.338	27.911	28.007	27.938	33.335	28.693	35.511	
	30.276	29.112	27.979	29.495	28.971	27.821	29.351	29.337	28.329	28.059	28.075	27.931	32.421	28.682	35.987	
11:00	30.271	29.052	27.939	29.323	28.828	27.795	29.392	29.196	28.306	28.158	28.046	27.938	32.791	28.514	36.105	
	30.475	29.041	28.023	29.522	29.024	27.858	29.587	29.443	28.342	27.895	27.975	27.927	32.873	28.614	36.201	
	30.961	29.499	28.009	29.753	29.133	28.013	29.706	29.451	28.478	28.141	28.013	27.934	33.892	28.814	36.869	
12:00																
13:00																
14:00																

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
15:00		31.111	29.423	28.164	30.013	29.217	27.939	30.047	29.678	28.611	28.026	28.006	28.011	33.508	28.984	36.523
		31.036	29.588	28.216	29.907	29.222	28.009	29.813	29.525	28.521	27.913	27.865	28.011	33.413	28.968	36.061
		30.294	29.066	28.062	29.502	29.052	27.951	29.498	29.312	28.419	28.116	28.068	27.986	32.473	28.627	34.858
		30.302	29.163	28.141	29.561	29.194	28.014	29.529	29.481	28.445	28.051	28.141	27.966	32.388	28.652	34.962
		29.951	28.884	27.958	29.235	28.981	27.846	29.299	29.267	28.311	28.246	28.026	27.991	31.605	28.437	33.299
		30.125	28.811	27.998	29.209	29.002	27.838	29.259	29.243	28.316	28.141	28.078	28.044	31.515	28.362	32.464
		30.111	28.884	27.974	29.251	28.916	27.846	29.205	29.187	28.294	28.086	28.054	28.038	31.715	28.469	33.645
		29.791	28.732	27.936	29.027	28.796	27.808	29.019	29.083	28.285	28.015	28.021	28.079	31.184	28.319	32.515
		29.919	28.724	27.925	29.027	28.883	27.814	28.941	29.043	28.271	28.085	28.095	28.133	31.032	28.239	31.819
		29.702	28.443	27.708	28.811	28.682	27.676	28.858	28.906	28.203	28.092	28.108	28.108	30.801	28.155	31.863
		29.551	28.512	27.713	28.783	28.657	27.649	28.785	28.849	28.097	28.049	27.987	28.034	30.648	28.131	31.886
		29.317	28.386	27.657	28.691	28.498	27.603	28.642	28.785	28.083	27.763	28.051	28.163	30.537	28.067	31.172
17:00		29.151	28.305	27.598	28.587	28.507	27.596	28.619	28.683	28.092	28.118	28.076	28.146	30.079	28.012	30.546
		29.201	28.147	27.543	28.404	28.357	27.557	28.452	28.532	28.021	27.973	28.133	28.117	29.728	27.891	30.046
		28.601	28.026	27.419	28.218	28.136	27.515	28.232	28.328	27.913	28.186	28.073	28.104	29.365	27.771	29.461
		28.412	27.851	27.339	28.059	27.942	27.418	28.075	28.219	27.899	28.187	28.107	28.155	29.113	27.675	29.066
		28.398	27.727	27.297	27.951	27.951	27.441	27.983	28.127	27.823	27.952	28.175	28.111	28.895	27.567	28.686
		28.252	27.661	27.244	27.848	27.883	27.421	27.836	28.046	27.817	27.881	28.121	28.251	28.679	27.513	28.375
		27.906	27.554	27.091	27.698	27.684	27.314	27.666	27.858	27.714	28.146	28.179	28.271	28.401	27.391	27.934
		27.728	27.475	27.042	27.569	27.635	27.283	27.571	27.779	27.697	28.385	28.327	28.151	28.271	27.345	27.697
		27.746	27.395	27.025	27.523	27.538	27.265	27.523	27.714	27.634	28.197	28.201	28.419	28.139	27.299	27.699
		27.817	27.401	26.981	27.529	27.592	27.226	27.498	27.721	27.639	28.189	28.141	28.637	28.008	27.254	27.719
		27.505	27.331	26.974	27.373	27.425	27.202	27.341	27.597	27.583	28.115	28.117	28.686	27.877	27.213	27.342
		27.568	27.215	26.911	27.376	27.439	27.166	27.361	27.567	27.551	28.148	28.102	28.627	27.746	27.183	27.311
20:00		27.439	27.215	26.928	27.311	27.374	27.135	27.294	27.534	27.568	28.156	28.037	28.612	27.615	27.166	27.404
		27.529	27.431	27.014	27.446	27.541	27.334	27.347	27.652	27.716	27.843	28.279	28.505	27.484	27.169	27.137
		27.189	27.125	26.836	27.157	27.301	27.125	27.141	27.462	27.542	27.821	28.061	28.763	27.357	27.013	26.611
		27.147	27.067	26.778	27.146	27.243	27.067	27.083	27.371	27.435	27.766	28.124	28.455	27.211	26.954	26.682
		26.856	26.888	26.664	26.953	27.081	26.921	26.888	27.225	27.338	27.812	28.011	28.534	26.841	26.888	26.069
		27.022	26.894	26.669	27.006	27.135	26.975	26.959	27.247	27.343	27.748	27.904	28.688	27.071	26.878	26.557
		26.878	26.734	26.558	26.878	26.991	26.831	26.864	27.136	27.199	27.893	27.986	28.434	26.912	26.831	26.349
		26.751	26.721	26.542	26.816	26.928	26.848	26.767	27.088	27.232	27.954	27.986	28.322	26.816	26.815	26.366
		26.712	26.712	26.536	26.792	26.888	26.792	26.728	27.049	27.193	27.851	27.995	28.411	26.793	26.808	26.327

MARCH
28 1994

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
MARCH 29 1994	23:00	26.732	26.684	26.541	26.797	26.958	26.781	26.749	27.021	27.182	27.871	28.095	28.303	26.764	26.829	26.475
		26.653	26.621	26.461	26.733	26.846	26.701	26.718	27.007	27.167	27.947	28.032	28.368	26.654	26.765	26.348
		26.606	26.606	26.446	26.721	26.815	26.719	26.686	26.991	27.152	27.953	27.937	28.371	26.638	26.784	26.301
		26.637	26.588	26.412	26.684	26.796	26.701	26.654	26.958	27.151	27.806	27.952	28.401	26.589	26.748	26.331
		26.545	26.554	26.461	26.619	26.763	26.683	26.599	26.891	27.083	27.772	27.984	28.348	26.522	26.731	26.185
		26.566	26.551	26.375	26.614	26.758	26.662	26.599	26.903	27.081	27.962	27.977	28.361	26.534	26.694	26.181
	24:00	26.515	26.498	26.321	26.578	26.739	26.642	26.514	26.867	27.027	27.765	28.021	28.388	26.433	26.675	26.032
		26.411	26.412	26.301	26.524	26.669	26.621	26.525	26.797	26.991	27.887	28.016	28.401	26.348	26.653	26.074
		26.421	26.406	26.277	26.518	26.663	26.565	26.453	26.789	27.015	27.802	27.929	28.425	26.325	26.647	26.019
		26.241	26.338	26.194	26.524	26.546	26.513	26.338	26.708	26.964	27.957	27.957	28.374	26.112	26.562	25.727
		26.124	26.253	26.108	26.403	26.478	26.445	26.302	26.656	26.896	27.954	28.002	28.371	25.932	26.511	25.611
		26.024	26.185	26.121	26.317	26.458	26.442	26.218	26.602	26.826	27.901	28.012	28.381	25.749	26.457	25.413
01:00	25.922	26.115	26.051	26.264	26.421	26.373	26.101	26.534	26.774	27.897	28.025	28.361	25.665	26.405	25.294	
	25.791	26.015	25.918	26.181	26.321	26.321	26.064	26.433	26.738	28.005	28.117	28.324	25.516	26.353	25.114	
	25.674	25.948	25.915	26.079	26.235	26.285	25.947	26.397	26.717	27.841	27.953	28.417	25.303	26.316	24.821	
	25.591	25.896	25.881	26.011	26.168	26.185	25.848	26.362	26.619	27.951	28.031	28.366	25.138	26.265	24.753	
	25.505	25.811	25.811	25.961	26.165	26.229	25.861	26.342	26.614	27.865	27.931	28.394	25.119	26.229	24.747	
	25.356	25.808	25.841	25.924	26.049	26.211	25.711	26.241	26.531	27.718	28.038	28.358	25.003	26.211	24.584	
	03:00	25.402	25.707	25.741	25.807	26.061	26.142	25.707	26.222	26.559	28.099	28.003	28.323	24.934	26.173	24.531
		25.157	25.624	25.704	25.787	25.946	25.977	25.544	26.219	26.444	28.095	28.064	28.304	24.739	26.107	24.189
		24.993	25.526	25.686	25.689	25.863	25.992	25.477	26.137	26.345	28.271	28.126	28.351	24.542	26.041	23.945
		24.651	25.264	25.475	25.573	25.796	25.892	25.314	26.037	26.294	27.947	27.995	28.301	23.892	25.941	23.361
		24.326	25.053	25.343	25.425	25.617	25.842	24.988	25.858	26.067	27.896	28.009	28.313	23.504	25.811	22.921
		24.099	24.905	25.261	25.166	25.437	25.727	24.906	25.743	26.033	27.975	27.991	28.311	23.227	25.727	22.775
04:00	24.097	24.968	25.243	25.083	25.501	25.757	24.871	25.791	26.015	28.005	27.957	28.245	23.291	25.711	22.544	
	24.145	24.952	25.257	25.051	25.451	25.725	24.838	25.773	26.046	27.844	27.892	28.292	23.336	25.708	22.625	
	24.532	25.193	25.402	25.015	25.563	25.804	25.031	25.869	26.174	27.795	28.035	28.292	23.886	25.788	23.417	
	24.561	25.191	25.384	25.273	25.609	25.883	25.111	25.884	26.124	27.801	28.211	28.131	23.949	25.835	23.481	
	24.594	25.239	25.401	25.239	25.561	25.883	25.078	25.835	26.141	28.002	28.051	28.386	23.933	25.802	23.479	
	24.841	25.143	25.481	25.223	25.611	25.787	25.095	25.867	26.157	28.171	28.227	28.355	23.884	25.787	23.401	
	05:00	24.499	25.176	25.353	25.256	25.643	25.851	25.127	25.868	26.191	27.843	28.147	28.243	23.966	25.788	23.513
		24.516	25.177	25.402	25.193	25.563	25.805	25.064	25.837	26.078	27.828	27.988	28.276	23.917	25.805	23.465
		24.549	25.161	25.355	25.177	25.548	25.709	25.048	25.822	26.095	28.157	27.989	28.181	24.001	25.806	23.708
MARCH 29 1994	06:00															
	29 1994															

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF	
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET
07:00		24.631	25.243	25.404	25.243	25.582	25.791	25.114	25.871	26.081	27.971	28.071	28.231	24.131	25.838
		24.808	25.323	25.453	25.356	25.694	25.856	25.227	25.936	26.192	27.991	28.053	28.231	24.373	25.887
		24.985	25.451	25.501	25.452	25.742	25.905	25.292	25.903	26.257	28.215	28.024	28.215	24.662	25.983
		25.453	25.678	25.677	25.726	25.999	25.983	25.597	26.144	26.433	28.231	27.894	28.134	25.323	26.161
		25.871	25.871	25.805	25.902	26.176	26.128	25.789	26.321	26.562	28.133	28.037	28.245	25.855	26.336
		26.045	26.046	25.933	26.111	26.321	26.159	25.982	26.431	26.641	28.421	28.148	28.149	26.191	26.447
		26.463	26.237	26.044	26.318	26.558	26.351	26.238	26.687	26.848	27.939	28.115	28.227	26.816	26.623
		26.847	26.542	26.252	26.606	26.767	26.478	26.526	26.895	27.024	27.681	27.681	28.131	27.505	26.815
		27.345	26.767	26.414	26.912	27.041	26.592	26.863	27.233	27.121	28.035	27.954	28.147	27.955	26.992
		28.086	27.173	26.611	27.301	27.461	26.741	27.317	27.606	27.365	27.869	28.039	28.118	29.158	27.269
09:00		28.285	27.308	26.665	27.501	27.548	26.827	27.404	27.724	27.421	27.805	27.997	28.125	29.469	27.437
		28.825	27.656	26.163	27.881	27.897	26.967	27.865	28.121	27.544	28.105	28.073	28.361	29.943	27.689
		28.921	27.737	26.357	27.946	27.978	26.984	27.882	28.171	27.593	28.199	28.092	28.378	30.422	27.802
		28.881	27.873	26.462	28.193	28.146	27.007	28.098	28.402	27.616	28.322	28.057	28.338	31.114	27.937
		29.281	27.921	26.511	28.289	28.193	27.071	28.305	28.433	27.729	28.401	28.177	28.257	31.129	27.989
		29.236	27.877	26.529	28.341	28.197	27.027	28.373	28.533	27.701	28.501	28.293	28.261	31.659	28.038
		29.631	28.353	26.702	28.753	28.482	27.184	28.672	28.865	27.889	28.421	27.968	28.112	32.478	28.208
		30.034	28.631	26.756	28.965	28.566	27.029	28.917	28.949	28.005	28.498	28.038	28.182	32.847	28.342
		30.394	28.801	26.931	29.234	28.736	26.641	29.217	29.073	28.195	28.442	27.795	28.291	33.556	28.562
		30.666	28.657	26.864	29.343	28.865	26.481	29.344	29.296	28.193	28.257	28.257	28.081	33.016	28.544
11:00		30.764	29.234	27.091	29.729	29.031	26.334	29.537	29.429	28.359	28.246	28.004	28.388	33.649	28.791
		30.349	29.023	27.009	29.457	28.946	26.239	29.441	29.281	28.259	28.162	28.066	28.499	33.301	28.627
		30.591	28.998	26.591	29.603	28.902	26.264	29.495	29.272	28.299	28.106	28.057	28.537	33.751	28.746
		30.648	29.055	26.961	29.681	28.883	26.206	29.534	29.394	28.324	28.148	28.101	28.533	34.045	28.741
		30.847	29.158	27.033	29.798	29.032	26.279	29.671	29.511	28.344	28.201	28.089	28.473	33.953	28.841
		31.634	29.663	27.002	30.378	29.375	26.208	30.175	29.821	28.567	28.384	28.454	28.703	35.558	29.221
		30.739	29.193	26.988	29.719	29.088	26.294	29.609	29.353	28.386	28.213	28.211	28.428	34.433	28.769
		30.793	29.105	26.947	29.822	28.961	26.305	29.663	29.328	28.361	28.019	28.136	28.488	34.061	28.871
		31.746	29.775	27.103	30.332	29.393	26.355	30.428	29.823	28.643	28.068	28.101	28.531	35.207	29.186
		32.048	29.761	27.058	30.461	29.474	26.457	30.429	29.967	28.667	28.151	28.071	28.501	35.789	29.362
14:00		32.359	30.288	26.807	31.011	29.785	26.894	30.851	30.215	28.877	28.072	28.112	28.481	36.599	29.626
		31.849	29.927	27.086	30.547	29.513	26.713	30.547	30.118	28.684	28.221	28.125	28.493	35.891	29.418
		32.345	30.244	27.191	31.013	29.805	26.567	30.932	30.301	28.785	28.051	28.069	28.514	36.444	29.677

MARCH
29 1994

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
MARCH 29 1994	15:00	31.668	29.731	26.998	30.604	29.427	26.476	30.572	29.905	28.526	28.142	28.126	28.557	35.835	29.514	37.781
		31.718	29.591	26.989	30.481	29.432	26.397	30.529	29.829	28.555	28.171	28.122	28.523	35.358	29.368	37.288
		31.413	29.745	27.032	30.318	29.522	26.521	30.365	29.968	28.742	28.103	28.117	28.502	34.308	29.156	35.866
	16:00	31.449	29.638	26.941	30.258	29.321	26.462	30.307	29.749	28.476	28.157	28.125	28.508	35.131	29.433	36.419
		32.144	29.827	26.955	30.591	29.556	26.571	30.749	29.971	28.681	28.281	28.106	28.489	35.787	29.779	36.261
		31.962	29.763	26.987	30.606	29.538	26.587	30.796	30.002	28.696	28.241	28.231	28.489	35.638	29.793	36.168
	17:00	31.709	29.868	26.965	30.631	29.645	26.623	30.553	30.043	28.753	28.083	28.115	28.482	35.127	29.772	35.966
		31.276	29.513	26.896	30.212	29.322	26.512	30.292	29.749	28.555	28.174	28.158	28.461	34.515	29.299	35.336
		31.371	29.545	27.088	30.316	29.383	26.688	30.276	29.863	28.716	28.263	28.271	28.477	34.091	29.123	34.923
	18:00	30.886	29.368	27.087	30.068	29.273	26.631	30.195	29.639	28.548	28.324	28.093	28.532	33.497	28.946	33.592
		30.479	28.143	26.778	29.746	29.128	26.733	29.796	29.462	28.522	28.219	28.283	28.618	32.713	28.793	32.856
		30.616	29.103	26.993	29.644	29.294	26.676	29.676	29.567	28.499	28.354	28.178	28.577	32.216	28.689	32.121
19:00	29.704	28.541	26.768	29.019	28.812	26.544	29.129	29.067	28.188	28.389	28.126	28.651	31.054	28.334	30.896	
	28.277	27.903	26.647	28.261	28.134	26.471	28.222	28.238	27.926	28.254	28.142	28.701	28.781	27.919	28.525	
	27.299	27.172	26.403	27.475	27.446	26.339	27.491	27.555	27.587	28.201	28.226	28.617	27.204	27.452	27.052	
20:00	26.691	26.835	26.226	26.995	27.043	27.004	26.987	27.173	27.371	28.266	28.179	28.587	26.516	27.165	26.043	
	25.962	26.379	26.122	26.603	26.683	26.622	26.523	26.827	26.987	28.116	28.244	28.666	25.451	26.885	24.982	
	25.918	26.341	26.111	26.441	26.554	26.611	26.329	26.682	26.891	28.114	28.217	28.648	25.343	26.801	24.677	
21:00	26.169	26.551	26.213	26.612	26.724	26.703	26.484	26.858	27.018	28.191	28.213	28.633	25.805	26.853	25.135	
	25.994	26.427	26.001	26.524	26.668	26.705	26.427	26.764	26.941	28.141	28.172	28.669	25.609	26.814	25.032	
	25.923	26.324	26.053	26.422	26.551	26.665	26.308	26.677	26.887	28.151	28.165	28.679	25.516	26.743	24.961	
22:00	25.896	26.329	26.042	26.361	26.531	26.634	26.148	26.661	26.822	28.118	28.182	28.628	25.329	26.661	24.702	
	25.991	26.274	26.019	26.472	26.644	26.745	26.372	26.708	26.899	28.109	28.133	28.676	25.553	26.676	24.892	
	25.992	26.329	25.992	26.458	26.597	26.669	26.309	26.678	26.923	28.151	28.151	28.662	25.619	26.662	24.996	
23:00	26.392	26.536	26.055	26.632	26.793	26.783	26.536	26.873	27.049	28.177	28.012	28.698	26.199	26.791	25.681	
	26.416	26.511	26.061	26.571	26.767	26.806	26.474	26.863	27.054	27.961	28.221	28.671	26.153	26.781	25.852	
	26.006	26.299	25.945	26.426	26.603	26.734	26.298	26.683	26.872	27.929	28.041	28.731	25.668	26.662	25.621	
24:00	26.251	26.426	25.946	26.494	26.653	26.739	26.396	26.765	26.973	28.079	28.126	28.718	26.027	26.734	25.705	
	25.838	26.129	25.856	26.275	26.434	26.597	26.177	26.546	26.738	28.036	28.115	28.706	25.438	26.579	25.212	
	25.721	26.028	25.817	26.122	26.312	26.442	26.023	26.427	26.668	27.899	28.059	28.701	25.122	26.475	24.881	
25:00	25.479	25.977	25.733	26.073	26.231	26.473	25.978	26.328	26.636	27.919	28.307	28.749	25.042	26.427	24.801	
	25.591	25.895	25.799	26.008	26.249	26.424	25.879	26.283	26.586	27.948	28.392	28.715	24.995	26.377	24.735	
	25.352	25.852	26.376	25.931	26.172	26.331	25.835	26.285	26.509	28.046	28.334	28.636	25.514	26.333	24.467	

DATE	TIME	12in. TUBE DIAMETER		10in. TUBE DIAMETER		8in. TUBE DIAMETER		SOIL TEMPERATURE DEPTH			TEMPERATURE OF					
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
MARCH 30 1994	24:00	25.179	25.793	26.255	25.807	26.048	26.511	25.661	26.256	26.482	28.037	28.311	28.635	25.835	26.272	24.486
		25.317	25.719	26.674	25.831	26.089	26.312	25.701	26.136	26.425	28.123	28.323	28.599	25.435	26.251	24.415
		25.277	25.727	27.141	25.792	26.081	26.619	25.679	26.209	26.451	28.276	28.317	28.686	25.103	26.226	24.455
		25.435	25.788	26.217	25.837	26.158	27.153	25.675	26.303	26.495	28.331	28.265	28.557	25.657	26.287	24.613
		25.529	25.816	26.814	25.897	26.138	27.022	25.784	26.251	26.524	28.462	28.261	28.649	25.435	26.316	25.223
		25.851	26.012	28.481	26.076	26.334	27.247	25.946	26.381	26.671	28.468	28.264	28.813	25.898	26.399	25.609
		25.452	25.853	26.691	25.885	26.143	27.643	25.821	26.287	26.561	28.422	28.216	28.669	25.588	26.301	25.256
		25.212	25.679	26.373	25.761	26.016	27.651	25.663	26.177	26.402	28.593	28.188	28.447	25.003	26.225	24.487
		25.039	25.553	26.074	25.619	25.908	27.681	25.538	26.021	26.278	28.565	28.177	28.484	24.938	26.221	24.362
		25.063	25.576	26.807	25.641	25.981	27.637	25.495	26.124	26.299	28.408	28.151	28.434	24.784	26.139	24.449
		25.261	25.695	27.557	25.711	26.018	27.515	25.615	26.177	26.402	28.446	28.157	28.319	24.815	26.177	24.601
		02:00		25.171	25.637	27.617	25.701	26.007	27.619	25.589	26.135	26.361	28.473	28.148	25.033	26.167
		25.084	25.597	27.052	25.628	25.935	27.271	25.516	26.129	26.353	28.412	28.124	24.931	26.128	24.244	
		25.041	25.622	27.885	25.655	25.912	27.718	25.508	26.104	26.329	28.524	28.132	24.894	26.103	24.269	
		25.098	25.549	27.878	25.629	25.952	27.686	25.517	26.081	26.288	28.581	28.125	24.679	26.112	24.325	
03:00		25.124	25.688	28.255	25.656	25.945	28.191	25.576	26.106	26.347	28.575	28.087	24.872	26.139	24.111	
		25.232	25.602	28.315	25.715	26.037	27.935	25.586	26.118	26.454	28.571	28.098	25.221	26.151	24.425	
		25.309	25.662	28.134	25.726	26.049	27.319	25.631	26.161	26.451	28.534	28.077	25.137	26.161	24.229	
		25.627	25.915	27.905	25.915	26.156	27.661	25.818	26.284	26.541	28.481	28.056	25.022	26.253	24.788	
04:00		25.542	25.848	27.773	25.912	26.201	27.456	25.813	26.298	26.571	28.494	28.071	25.012	26.249	24.688	
		25.411	25.813	27.706	25.845	26.102	27.421	25.715	26.214	26.503	28.524	28.083	25.446	26.231	24.443	
		25.069	25.648	27.656	25.681	25.954	26.949	25.553	26.067	26.421	28.537	28.064	25.489	26.131	24.101	
		25.212	25.695	27.702	25.694	26.033	27.417	25.599	26.112	26.402	28.519	28.062	25.593	26.161	24.405	
05:00		25.128	25.644	27.539	25.644	25.965	26.992	25.516	26.094	26.383	28.484	28.061	25.601	26.142	24.177	
		25.159	25.659	27.569	25.642	25.996	26.707	25.546	26.044	26.366	28.451	28.073	25.379	26.125	24.241	
		25.061	25.559	27.487	25.607	25.897	27.047	25.479	26.026	26.363	28.448	28.088	25.616	26.074	24.206	
		25.172	25.671	27.598	25.622	25.976	27.451	25.511	26.073	26.331	28.479	28.086	25.639	26.105	24.188	
MARCH 30 1994	06:00	25.091	25.637	27.499	25.637	25.911	26.962	25.475	26.023	26.312	28.461	28.085	25.892	26.103	24.137	

ข้อมูลจากการทดลองช่วงที่ 1 ครั้งที่ 2

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
APRIL 4 1994	18:00	29.007	28.161	28.404	28.692	28.166	28.343	28.283	28.169	27.788	28.501	27.301	27.390	30.518	31.522	30.501
		28.746	28.638	28.256	28.724	28.407	28.025	28.737	28.476	28.113	28.438	27.302	27.178	30.081	30.995	30.232
		27.939	27.937	27.997	28.431	28.411	28.118	28.821	28.483	28.193	28.397	27.271	27.202	30.006	30.258	29.568
	19:00	28.911	28.657	28.196	28.569	28.617	28.039	29.024	28.684	28.235	28.475	27.353	27.284	29.481	30.036	29.268
		28.614	27.767	28.044	28.381	27.934	27.852	28.418	28.037	27.157	28.296	27.256	27.241	28.944	29.905	28.947
		28.226	27.697	27.906	28.145	28.001	27.921	28.082	27.953	27.375	28.129	27.119	27.103	28.611	29.588	28.739
	20:00	28.538	28.037	27.861	28.144	27.967	27.902	28.028	27.981	27.591	28.215	27.123	27.072	28.593	29.281	28.494
		28.524	27.802	27.788	28.176	27.655	27.396	28.216	27.883	27.385	28.191	27.181	27.071	28.563	29.081	28.131
		28.657	28.518	28.232	28.427	28.157	27.632	27.921	28.243	27.816	28.235	27.195	27.116	28.579	29.998	28.729
	21:00	28.778	28.681	28.088	28.811	28.582	27.925	28.838	28.517	28.178	28.371	27.324	27.275	28.744	29.164	28.585
		28.575	28.225	28.132	28.376	28.122	27.481	28.145	28.083	28.263	28.447	27.374	27.249	28.614	28.751	28.675
		28.791	28.446	27.912	28.493	28.132	27.591	28.548	28.214	27.415	28.289	27.212	27.231	29.107	28.572	28.667
22:00	28.015	28.241	28.212	28.895	28.819	27.031	27.945	28.945	28.001	28.156	27.171	27.043	28.915	28.781	27.997	
	28.702	28.401	28.021	28.521	28.444	27.871	28.068	28.522	28.142	28.256	27.203	27.239	28.031	28.533	27.931	
	28.444	28.411	28.376	28.121	28.406	28.371	27.967	28.381	28.391	28.384	27.321	27.249	28.115	28.444	27.768	
23:00	28.981	28.771	28.168	28.175	28.514	27.926	28.256	28.652	28.192	28.423	27.368	27.321	28.004	28.621	27.989	
	28.555	28.414	28.016	28.528	28.247	27.816	28.493	28.399	28.051	28.231	27.255	27.343	27.893	28.601	27.787	
	28.151	27.698	27.787	28.025	28.003	27.901	27.766	27.987	28.044	28.159	27.157	27.165	27.885	28.181	27.648	
24:00	28.061	27.939	27.981	28.022	28.241	27.901	28.022	28.365	27.897	28.212	27.213	27.129	27.766	28.115	28.585	
	28.135	28.247	28.024	28.271	28.316	27.995	28.088	28.133	28.091	28.281	27.281	27.293	27.808	28.057	27.609	
	28.778	28.392	28.224	28.283	28.477	27.921	28.068	28.241	28.029	28.441	27.391	27.428	27.812	28.044	27.649	
01:00	28.609	28.504	28.201	28.281	28.584	28.012	28.285	28.616	28.237	28.291	27.232	27.325	27.797	28.366	27.346	
	28.085	28.114	28.062	27.959	28.369	28.091	27.766	28.115	28.225	28.186	27.188	27.237	27.171	28.228	27.492	
	28.147	28.176	28.057	28.085	28.238	27.863	27.939	28.078	27.921	28.231	27.081	27.187	27.532	28.056	27.053	
APRIL 5 1994	28.421	28.377	28.312	28.281	28.373	28.036	27.393	28.224	28.085	28.255	27.266	27.426	27.386	28.019	27.003	
	28.163	28.217	28.147	28.148	28.242	28.976	27.898	28.183	28.001	28.351	27.357	27.427	27.221	27.978	27.035	
	28.084	28.077	28.013	27.935	28.279	28.884	27.191	28.284	28.141	28.256	27.268	27.231	27.091	27.803	27.121	
02:00	27.841	27.836	27.913	27.816	28.128	28.141	27.798	28.113	27.937	28.251	27.243	27.316	27.131	27.911	27.123	
	28.302	28.907	28.273	28.242	28.417	28.415	27.872	28.242	28.032	28.325	27.319	27.427	27.168	27.457	26.827	
	28.081	27.884	27.977	27.891	27.867	28.832	27.662	28.127	27.188	28.169	27.203	27.164	27.036	27.916	26.841	
02:00	27.848	27.447	27.488	27.865	28.132	28.852	27.586	28.414	27.442	28.119	27.226	27.201	26.856	27.876	26.573	
	27.827	27.874	27.941	27.785	28.183	28.909	27.609	28.054	27.911	28.189	27.231	27.213	26.155	27.883	26.358	
	28.025	28.021	28.053	27.062	28.274	28.441	27.502	28.173	28.025	28.275	27.277	27.327	26.689	27.899	26.438	

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
APRIL 5 1994	03:00	27.883	28.086	28.141	27.881	28.029	28.409	27.559	28.153	28.061	28.365	27.371	27.355	26.627	27.863	26.365
		26.375	27.914	27.921	27.788	28.169	28.505	27.609	28.164	28.171	28.489	27.299	27.675	26.601	27.865	26.134
		27.445	27.743	27.821	27.566	28.044	28.376	27.391	27.958	27.901	28.211	27.111	27.457	26.385	27.756	26.332
		27.401	27.601	27.758	27.603	27.973	28.251	27.172	27.953	27.982	28.168	27.121	27.418	25.838	27.727	25.271
		27.429	27.714	27.836	27.495	28.006	28.023	27.195	27.979	28.007	28.025	27.412	27.475	25.606	27.711	25.031
		27.566	27.832	27.932	27.602	28.039	28.103	27.289	28.043	28.412	28.321	27.259	27.515	25.633	27.709	25.262
		27.431	27.514	27.693	27.381	27.881	27.952	27.156	27.992	27.959	28.481	27.441	27.261	25.832	27.714	25.552
		27.368	27.509	27.698	27.403	27.882	27.993	27.035	27.916	27.977	28.217	27.135	27.341	25.618	27.614	25.182
		27.473	27.873	27.878	27.541	27.931	27.941	27.194	27.991	28.171	28.355	27.286	27.449	25.815	27.692	25.325
		27.467	27.769	27.789	27.992	27.439	27.995	27.126	27.926	28.031	28.242	27.231	27.382	25.267	27.623	25.681
		27.494	27.491	27.739	27.451	27.996	27.991	27.112	28.008	28.121	28.246	27.235	27.391	25.618	27.672	25.276
		27.306	27.437	27.794	27.316	27.821	27.824	27.042	27.949	27.945	28.245	27.194	27.379	25.608	27.625	25.266
27.262	27.299	27.654	27.372	27.901	27.865	26.953	27.911	28.086	28.128	27.109	27.271	25.481	27.571	25.135		
27.379	27.585	27.725	27.336	27.954	27.991	27.077	27.874	27.987	28.188	27.293	27.339	25.957	27.638	25.251		
27.383	27.651	27.721	27.427	27.989	27.948	27.129	27.009	28.075	28.262	27.327	27.404	25.991	27.654	25.123		
26.228	26.721	26.988	26.681	27.127	27.252	26.558	27.324	27.626	28.025	27.123	27.153	25.232	27.256	25.272		
26.063	26.639	26.894	26.698	27.034	27.256	26.449	27.299	27.489	28.048	27.115	27.126	25.465	27.217	25.211		
26.335	26.738	26.961	26.877	27.187	27.278	26.633	27.338	27.781	28.088	27.106	27.278	25.187	27.249	26.097		
26.659	26.907	27.726	27.027	27.301	27.344	26.285	27.277	27.522	28.066	27.181	27.253	26.276	27.527	26.487		
26.995	27.122	27.266	27.106	27.912	27.412	26.445	27.488	27.617	28.079	27.099	27.277	26.637	27.451	27.298		
27.215	27.235	27.906	27.246	27.544	27.469	27.131	27.994	27.692	28.107	27.128	27.253	27.111	27.699	27.832		
28.045	27.755	27.787	27.674	27.802	27.809	27.981	27.721	27.199	28.121	27.204	27.218	28.219	27.861	28.571		
28.205	27.771	27.851	27.705	27.887	27.752	27.714	27.897	27.878	28.174	27.203	27.263	28.499	27.991	29.071		
28.232	27.861	27.818	27.862	27.991	27.824	27.764	27.892	27.727	28.099	27.385	27.245	28.439	28.033	29.081		
28.662	28.149	28.037	28.068	28.011	27.923	27.955	28.035	27.438	28.116	27.216	27.244	29.202	28.161	30.461		
29.022	28.382	28.222	28.302	28.413	28.029	28.317	28.365	28.189	28.189	27.162	27.302	29.611	28.267	31.014		
28.901	28.245	28.123	28.308	28.308	27.892	28.261	28.276	28.021	28.116	27.127	27.321	29.235	28.221	30.576		
28.987	28.369	28.274	28.466	28.402	28.832	28.321	28.433	28.081	28.177	27.215	27.259	30.234	28.369	30.604		
29.531	28.963	28.483	29.155	28.883	28.259	28.991	28.756	28.291	28.181	27.234	27.278	30.881	28.821	31.964		
29.835	29.021	28.733	29.101	28.877	28.837	29.005	28.802	28.382	28.158	27.245	27.291	31.127	28.799	31.828		
29.998	29.198	28.815	29.311	29.103	28.386	29.311	29.121	28.368	28.161	27.246	27.258	31.134	29.004	31.865		
29.974	29.168	28.768	29.263	29.008	29.401	29.281	29.025	28.417	28.177	27.201	27.307	31.513	28.946	32.461		
29.755	29.659	28.957	29.725	29.245	28.478	29.581	29.213	28.607	28.175	27.246	27.273	32.781	29.183	32.786		

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
APRIL 5 1994	11:00	30.036	29.826	28.901	29.316	28.485	29.101	29.189	28.662	26.184	28.255	27.181	27.299	31.317	29.281	33.065
		30.787	29.881	28.438	30.081	29.461	28.504	29.931	29.377	26.541	28.209	27.224	27.378	33.191	29.454	34.232
		31.288	30.192	29.011	30.204	29.556	28.551	30.084	29.558	26.343	28.186	27.251	27.362	34.069	29.531	35.179
		31.269	30.155	29.105	30.109	29.301	28.999	30.001	28.926	26.524	28.101	27.332	27.301	34.513	29.526	35.599
	31.316	30.301	29.736	30.577	29.691	28.566	30.335	29.131	26.661	28.166	27.241	27.313	34.923	29.111	36.135	
	31.917	30.255	29.154	30.442	29.601	28.469	30.381	29.881	26.591	28.199	27.285	27.311	34.852	29.118	36.291	
	31.613	30.389	29.247	30.503	29.786	28.733	30.408	29.898	26.925	28.241	27.328	27.212	34.832	29.679	36.427	
	31.543	30.428	29.481	30.603	29.854	28.833	30.383	29.857	26.852	28.261	27.376	27.276	34.303	29.573	36.206	
	32.301	30.937	29.531	31.001	30.078	28.899	30.794	29.985	26.853	28.228	27.285	27.361	35.578	29.925	36.081	
	32.273	30.752	29.462	30.927	29.524	28.632	30.838	30.183	26.894	28.268	27.207	27.281	35.428	29.915	37.307	
	32.473	30.802	29.332	31.044	30.082	28.166	30.933	30.186	26.841	28.253	27.362	27.322	35.872	30.031	37.643	
	32.281	31.062	29.567	31.111	30.043	28.651	30.983	30.203	26.972	28.292	27.346	27.308	36.189	30.032	38.295	
32.926	30.851	29.393	31.298	30.855	28.370	31.203	30.445	26.019	28.251	27.332	27.296	35.658	30.043	39.412		
32.224	30.973	29.469	31.245	30.244	28.044	31.251	30.554	26.897	28.207	27.367	27.308	35.964	30.149	39.026		
32.294	31.275	29.604	31.433	30.384	28.886	31.322	30.383	26.029	28.311	27.335	27.341	35.581	30.187	38.926		
32.042	30.614	29.001	31.382	30.201	28.981	31.249	30.534	26.132	28.351	27.392	27.381	35.771	30.105	38.996		
32.636	31.061	29.422	31.445	30.439	28.985	31.395	30.511	26.113	28.384	27.393	27.324	36.007	30.115	38.815		
32.356	30.816	29.399	31.356	30.259	28.659	31.129	30.366	26.964	28.378	27.434	27.423	36.187	30.212	38.304		
32.483	31.151	29.479	31.341	30.275	28.779	31.229	30.387	26.888	28.379	27.435	27.375	36.034	30.232	38.304		
32.631	31.932	29.409	31.249	30.232	28.765	31.297	30.518	26.041	28.366	27.454	27.254	36.243	30.264	38.221		
32.441	30.885	29.574	31.374	30.327	28.861	31.297	30.517	26.133	28.366	27.434	27.265	35.831	30.227	37.761		
32.347	30.887	29.474	31.379	30.187	28.689	31.301	30.489	26.119	28.389	27.491	27.241	36.151	30.457	37.457		
32.025	30.728	29.417	31.268	30.426	28.779	31.168	30.389	26.162	28.364	27.436	27.346	35.927	30.453	37.656		
32.349	30.842	29.393	31.255	30.222	28.802	31.143	30.424	26.973	28.383	27.455	27.269	35.741	30.508	37.704		
32.306	30.702	29.334	31.099	30.082	28.611	31.079	30.285	26.978	28.381	27.406	27.332	35.677	30.295	37.765		
31.963	30.756	29.223	31.022	30.052	28.728	31.022	30.271	26.016	28.357	27.445	27.355	35.259	30.016	37.031		
31.833	30.611	29.157	30.877	29.971	28.631	30.892	30.177	26.029	28.401	27.506	27.332	34.701	29.803	36.102		
31.609	30.531	29.171	30.733	29.872	28.675	30.617	30.059	26.991	28.366	27.484	27.331	34.531	29.638	34.843		
31.342	30.035	29.042	30.528	29.699	28.621	30.572	29.856	26.478	28.383	27.521	27.334	33.531	29.417	33.693		
31.033	29.144	28.962	30.138	29.533	28.624	30.275	29.406	26.972	28.333	27.448	27.327	32.586	29.235	32.685		
30.532	29.577	28.828	28.893	29.398	28.551	29.921	29.439	26.849	28.355	27.554	27.333	32.106	29.053	32.141		
30.911	29.464	28.801	29.781	29.334	28.557	29.828	29.477	26.855	28.345	27.445	27.374	31.844	28.979	31.744		
29.855	29.089	28.629	29.331	29.071	28.415	28.298	29.085	26.482	28.284	27.453	27.396	30.697	28.654	30.453		

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
19:00		29.685	28.451	28.467	29.155	28.463	28.307	29.111	29.001	28.388	28.324	27.412	27.403	30.318	28.529	30.078
		29.461	28.762	28.347	28.986	28.826	28.155	29.011	28.873	28.474	28.299	27.401	27.341	30.038	28.426	29.828
		29.179	28.556	28.204	28.795	28.651	28.111	28.793	28.697	28.345	28.281	27.385	27.488	29.541	28.313	29.381
		29.002	28.441	28.192	28.705	28.509	28.142	28.718	28.638	28.361	28.286	27.314	27.411	29.277	28.211	29.101
		29.112	28.451	28.619	28.681	28.569	28.185	28.644	28.601	28.345	28.363	27.382	27.464	29.318	28.241	29.125
		29.405	29.064	28.501	29.034	28.592	28.302	28.744	28.642	28.733	28.648	27.668	27.761	29.044	28.384	29.118
		29.706	29.448	28.644	29.318	29.024	28.421	28.123	28.011	28.847	28.735	27.791	27.843	29.147	28.859	29.144
		28.638	28.266	28.052	28.442	28.394	28.106	28.442	28.421	28.301	28.566	27.401	27.344	28.484	28.201	28.984
		28.898	28.562	28.024	28.762	28.415	28.061	28.524	28.475	28.534	28.414	27.528	27.616	29.047	28.375	29.205
		29.634	29.306	28.507	29.198	28.851	28.169	28.753	28.951	28.151	28.333	27.651	27.881	28.966	29.748	28.816
21:00		28.052	28.841	28.716	28.192	27.907	27.544	28.138	28.073	27.762	28.121	27.269	27.376	28.533	28.196	28.323
		28.727	28.951	28.885	28.205	28.061	27.706	28.186	28.153	27.928	28.104	27.237	27.392	28.534	28.213	28.358
		28.447	28.223	28.296	28.962	28.403	27.108	28.358	28.392	27.993	28.268	27.435	28.024	28.421	28.854	28.698
		29.364	29.344	28.618	29.008	29.532	28.854	28.654	28.826	28.644	28.154	27.138	27.755	29.051	28.691	28.672
		28.299	28.269	28.195	28.188	28.406	28.212	27.961	28.421	28.596	28.292	27.429	27.601	28.364	28.682	28.182
		29.193	29.112	28.579	28.969	28.182	28.281	28.133	28.126	28.541	28.371	27.684	27.715	28.504	28.411	28.278
		28.911	28.925	28.109	28.612	28.074	27.792	27.473	28.531	28.415	28.402	27.546	27.651	28.335	28.921	28.973
		28.394	28.246	27.649	28.529	28.479	27.802	28.318	28.573	28.349	28.221	27.384	27.451	28.115	28.775	27.961
		28.512	28.236	27.651	28.542	28.735	27.518	28.493	28.502	28.141	28.199	27.421	27.475	28.033	28.591	27.745
		27.071	28.155	27.961	28.213	28.181	28.023	28.001	28.129	28.297	28.259	27.414	27.569	28.085	28.285	28.039
24:00		28.656	28.665	28.324	28.638	28.631	28.129	28.266	28.478	28.536	28.414	27.495	27.648	28.139	28.551	28.096
		28.991	28.725	27.924	28.784	28.587	27.714	28.381	28.661	28.412	28.312	27.537	27.641	28.087	28.628	28.125
		28.157	28.187	28.037	28.159	28.572	28.068	27.927	28.312	28.356	28.124	27.295	27.301	27.726	28.392	27.908
		28.141	28.195	27.166	28.211	28.432	28.127	28.063	28.203	28.278	28.158	27.349	27.391	27.508	28.267	27.184
		28.225	28.542	28.162	28.443	28.541	28.073	28.103	28.509	28.504	28.119	27.491	27.602	27.686	28.145	27.762
		28.276	28.237	28.273	28.227	28.441	28.101	28.041	28.458	28.451	28.221	27.412	27.471	27.559	28.246	27.228
		28.511	28.685	28.396	28.395	28.473	28.121	28.089	28.337	28.185	28.244	27.509	27.561	27.473	28.145	26.461
		28.331	28.109	28.444	28.495	28.649	28.143	28.036	28.539	28.655	28.382	27.564	27.656	27.401	28.136	27.043
		27.962	28.209	28.129	28.124	28.275	27.994	27.856	28.315	28.259	28.316	27.586	27.645	27.289	28.121	27.133
		27.761	28.052	27.995	27.026	28.181	27.896	27.802	28.213	28.281	28.256	27.541	27.512	27.283	28.039	27.332
01:00		27.581	27.813	27.968	27.915	28.245	28.303	28.251	28.324	28.157	28.258	27.441	27.401	27.106	28.001	26.825
		27.784	28.034	27.015	28.232	28.033	28.033	27.802	28.295	28.371	28.172	27.415	27.467	27.079	28.036	26.853
		27.932	28.166	28.131	28.112	28.326	28.128	27.885	28.348	28.963	28.235	27.251	27.511	27.064	28.021	26.145

APRIL
6 1994

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
APRIL 6 1994	03:00	28.053	28.363	28.266	28.222	28.334	28.158	27.821	28.381	28.543	28.298	27.591	27.538	27.103	28.062	26.714
		27.815	28.248	28.136	28.036	28.321	28.112	27.111	28.319	28.502	28.291	27.611	27.496	26.801	28.031	26.419
		27.612	27.958	28.003	27.938	28.232	28.073	27.681	28.281	28.402	28.199	27.551	27.449	26.168	27.982	26.513
	04:00	26.062	27.414	27.541	27.441	27.507	27.658	27.239	28.151	28.114	28.081	27.668	27.305	26.483	27.665	26.011
		26.133	27.153	27.329	27.256	27.934	27.576	27.094	27.588	27.649	28.032	27.604	27.304	26.434	27.557	26.015
		26.482	26.962	27.185	27.105	27.328	27.422	26.905	27.482	27.753	27.959	27.412	27.327	25.931	27.424	25.551
	05:00	26.241	26.821	27.054	27.009	27.234	27.345	26.166	27.407	27.552	27.935	27.422	27.354	25.131	27.354	25.181
		26.062	26.722	26.977	26.928	27.151	27.235	26.666	27.293	27.601	27.969	27.419	27.351	25.698	27.281	25.085
		25.971	26.759	26.967	26.903	27.191	27.255	26.519	27.302	27.477	27.913	27.461	27.343	25.155	27.234	25.303
	06:00	26.123	26.685	26.926	26.441	27.151	27.191	26.635	27.243	27.566	27.751	27.452	27.366	25.634	27.242	25.344
		26.239	26.185	27.441	26.881	27.139	27.298	26.624	27.331	27.523	27.623	27.538	27.309	25.428	27.244	25.061
		26.602	26.765	26.951	26.837	27.126	27.386	26.654	27.307	27.455	27.426	27.605	27.705	25.757	27.257	25.401
07:00	26.147	26.807	27.016	26.403	27.081	27.272	26.661	27.288	27.465	27.384	27.431	27.268	25.612	27.223	25.325	
	26.169	26.672	26.865	26.801	26.993	27.134	26.527	27.121	27.362	27.311	27.905	27.231	25.577	27.785	25.255	
	26.157	26.753	26.883	26.802	26.993	27.203	26.561	27.738	27.444	27.301	27.893	27.295	25.531	27.186	25.452	
08:00	26.066	26.869	26.993	26.886	27.079	27.238	26.646	27.224	27.427	27.321	28.202	27.283	25.647	27.234	25.675	
	26.453	26.862	27.021	26.472	27.191	27.341	27.358	27.502	27.577	27.645	28.191	27.291	25.881	27.311	26.217	
	26.581	27.055	27.151	27.122	27.295	27.407	26.831	27.741	27.521	27.648	28.281	27.243	26.332	27.408	27.271	
09:00	26.892	27.275	27.388	27.307	27.501	27.532	27.147	27.628	27.708	27.766	28.076	27.239	26.841	27.596	27.781	
	27.225	27.466	27.482	27.518	27.578	27.678	27.209	27.626	27.754	27.562	28.123	27.237	27.369	27.368	28.144	
	27.704	27.639	27.656	27.638	27.848	27.723	27.681	27.442	28.083	27.478	28.168	27.218	28.157	27.971	29.535	
10:00	28.983	28.163	27.987	28.115	28.119	27.954	28.035	28.227	28.291	27.538	28.147	27.165	28.995	28.131	30.491	
	28.531	28.226	27.487	28.211	28.226	28.006	28.066	28.274	28.178	27.665	28.098	27.164	29.663	28.258	31.448	
	29.233	28.626	28.306	28.642	28.544	28.098	28.658	28.782	28.402	27.697	28.082	27.111	30.606	28.653	32.637	
11:00	29.244	28.628	28.308	28.668	28.565	28.084	28.644	28.661	28.229	27.662	28.052	27.135	30.604	28.613	32.611	
	29.156	28.925	28.462	29.028	28.766	28.206	28.915	28.863	28.915	27.663	28.095	27.145	31.368	28.848	33.336	
	29.993	29.018	28.506	29.741	28.814	28.218	29.211	28.481	28.508	27.644	28.092	27.158	31.746	28.956	33.682	
11:00	29.561	29.012	28.761	29.185	28.444	28.111	28.836	28.704	28.286	27.638	28.103	27.161	31.781	28.959	33.908	
	30.133	29.006	28.962	28.631	28.078	28.004	28.462	28.927	28.064	27.632	28.114	27.174	31.815	28.963	33.834	
	30.867	29.609	28.826	29.334	29.244	28.461	29.755	29.433	28.734	27.502	28.175	27.177	33.411	29.424	34.602	
11:00	30.965	29.755	28.846	30.327	29.375	28.464	29.966	29.514	28.731	27.314	28.227	27.243	33.877	29.523	35.063	
	30.185	29.929	29.035	30.251	29.436	28.528	30.244	29.113	28.913	27.216	28.285	27.261	33.857	29.586	35.136	
	31.306	29.937	28.962	30.355	29.557	28.675	30.245	29.767	28.884	27.305	28.284	27.236	34.293	29.706	35.131	

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
APRIL 6 1994	12:00	31.558	30.155	29.189	30.508	29.681	28.628	30.416	29.953	29.062	27.351	28.281	27.134	34.353	29.752	35.386
		31.695	30.247	29.134	30.661	29.124	28.626	30.681	30.011	29.009	27.331	28.306	27.144	35.039	29.841	36.112
		32.032	30.198	29.145	30.755	29.767	28.622	30.802	30.857	28.912	27.316	28.321	27.161	34.835	29.792	36.077
		31.803	30.308	29.175	30.844	29.831	28.536	30.833	30.101	29.079	27.451	28.301	27.283	34.451	29.913	35.616
		31.834	30.356	29.204	30.154	29.787	28.611	30.811	30.164	29.086	27.303	28.382	27.205	34.654	30.046	35.672
		31.157	30.251	29.182	30.823	29.861	28.118	30.883	30.218	29.105	27.283	28.401	27.286	35.411	30.002	35.933
	13:00	31.761	30.554	29.236	30.134	29.101	28.646	30.928	30.181	29.111	27.257	28.454	27.233	35.414	29.893	36.392
		31.428	30.435	29.353	30.428	29.992	28.861	31.122	30.343	29.276	27.245	28.413	27.256	35.881	30.044	36.866
		31.881	30.431	29.283	31.022	30.052	28.171	31.022	30.338	29.255	27.293	28.474	27.224	35.441	31.103	36.781
		32.121	30.434	29.954	31.244	30.138	28.831	31.284	30.917	29.278	27.274	28.501	27.219	37.151	30.211	38.591
		32.301	30.686	29.454	31.357	30.166	28.816	31.591	30.599	29.357	27.209	28.505	27.264	36.224	30.311	37.451
		32.521	30.147	29.377	31.382	30.306	28.981	31.443	30.511	29.251	27.201	28.514	27.291	36.281	30.269	37.476
14:00	32.101	31.607	29.511	31.511	30.305	28.969	31.244	30.564	29.352	27.243	28.586	27.217	36.256	30.356	37.331	
	32.481	30.951	29.524	31.306	30.406	28.841	31.402	30.528	29.353	27.228	28.534	27.257	35.801	30.325	36.954	
	32.388	30.688	29.452	31.472	30.311	28.911	31.313	30.502	29.181	27.151	28.557	27.237	36.054	30.281	37.189	
	32.512	30.894	29.531	31.532	30.278	28.986	31.375	30.608	29.417	27.167	28.555	27.235	35.971	30.397	36.762	
	32.452	30.863	29.574	31.318	30.331	28.984	31.244	30.561	29.366	27.305	28.569	27.138	35.144	30.402	36.358	
	32.465	30.121	29.499	31.276	30.152	28.909	31.246	30.486	29.275	27.326	28.557	27.204	35.678	30.954	36.858	
15:00	32.386	30.767	29.462	31.335	30.271	28.995	31.288	30.445	29.248	27.348	28.548	27.241	35.602	30.476	36.934	
	32.055	30.642	29.368	31.151	30.085	28.858	31.231	30.516	29.304	27.355	28.573	27.288	35.045	30.447	36.525	
	32.148	30.639	29.351	31.254	30.134	28.919	31.243	30.396	29.234	27.281	28.563	27.226	35.618	30.541	36.456	
	32.069	30.608	29.286	31.147	30.162	28.871	31.169	30.433	29.141	27.369	28.521	27.271	35.382	30.428	36.205	
	31.887	30.431	29.144	30.993	30.024	28.795	31.174	30.344	29.191	27.401	28.441	27.231	35.088	30.051	35.959	
	31.483	30.454	29.223	30.939	30.088	28.192	31.102	30.228	29.115	27.401	28.457	27.297	34.522	29.888	35.605	
16:00	31.678	30.755	29.176	30.157	29.245	28.145	30.427	30.112	29.156	27.447	28.452	27.261	33.434	29.644	33.455	
	31.281	30.016	29.097	30.451	29.806	28.681	30.652	29.846	29.044	27.414	28.475	27.324	33.091	29.441	32.652	
	30.912	29.782	28.936	30.228	29.424	28.587	30.304	29.731	28.965	27.362	28.451	27.331	32.461	29.328	32.142	
	30.732	29.641	28.926	30.981	29.441	28.545	30.077	29.581	28.844	27.373	28.461	27.314	32.121	29.209	31.916	

ตารางที่ 1.2 แสดงผลข้อมูลจากการทดลองช่วงที่ 2 จำนวน 2 ครั้ง

ครั้งที่ 1 เริ่มเก็บข้อมูล 18.00 น. วันที่ 4 พฤษภาคม 2537

ถึง 20.00 น. วันที่ 5 พฤษภาคม 2537

ครั้งที่ 2 เริ่มเก็บข้อมูล 08.00 น. วันที่ 6 พฤษภาคม 2537

ถึง 12.00 น. วันที่ 7 พฤษภาคม 2537

ข้อมูลจากการทดลองช่วงที่ 2 ครั้งที่ 1

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HEAD	MID.	END	HEAD	MID.	END	HEAD	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
MAY 4 1994	18:00	31.471	30.786	30.613	31.021	30.656	30.230	30.612	30.501	30.343	31.505	29.497	29.502	32.153	30.241	31.961
		31.205	30.534	30.453	30.852	30.502	30.055	30.596	30.459	30.311	30.879	29.502	29.502	31.820	30.088	31.667
		31.060	30.475	30.445	30.645	30.360	30.029	30.396	30.363	30.312	31.776	29.503	29.503	31.535	30.050	31.361
		30.954	30.644	30.381	30.541	30.281	29.946	30.388	30.324	30.294	31.746	29.542	29.542	31.351	29.968	31.224
		30.871	30.515	30.347	30.458	30.236	29.901	30.319	30.286	30.247	31.593	29.538	29.538	31.253	29.917	31.172
		30.791	30.434	30.298	30.408	30.171	29.884	30.291	30.223	30.213	31.819	29.538	29.538	31.141	29.868	31.045
	20:00	30.727	30.401	30.266	30.344	30.122	29.836	30.243	30.224	30.197	31.532	29.505	29.505	31.030	29.804	30.933
		30.752	30.396	30.291	30.355	30.099	29.845	30.237	30.224	30.123	31.814	29.527	29.527	31.086	29.809	30.955
		30.709	30.388	30.216	30.344	30.073	29.764	30.126	30.202	30.113	31.797	29.515	29.515	31.056	29.783	31.013
		30.783	30.342	30.273	30.387	30.131	29.844	30.097	30.112	30.123	31.733	29.563	29.563	31.101	29.845	31.021
		30.667	30.341	30.237	30.236	30.045	29.807	30.002	30.050	30.085	31.581	29.525	29.525	30.889	29.775	30.762
		30.570	30.324	30.203	30.236	30.045	29.789	29.932	30.013	30.203	31.553	29.540	29.540	30.809	29.741	30.681
21:00	30.502	30.287	30.245	30.166	29.992	29.785	29.981	29.992	30.179	31.512	29.503	29.503	30.677	29.737	30.580	
	30.497	30.378	30.211	30.179	30.004	29.781	29.972	29.988	30.129	31.588	29.515	29.515	30.671	29.748	30.528	
	30.385	30.268	30.189	30.103	29.939	29.712	29.817	29.955	30.053	31.507	29.494	29.494	30.461	29.681	30.321	
	30.210	30.131	30.153	30.051	29.924	29.736	29.829	29.940	30.031	31.591	29.497	29.497	30.496	29.700	30.386	
	30.163	30.156	30.143	30.003	29.875	29.716	29.748	29.875	30.029	31.603	29.514	29.514	30.337	29.652	30.162	
	30.121	30.121	30.123	29.924	29.812	29.669	29.670	29.828	30.074	31.435	29.482	29.482	30.226	29.588	30.067	
22:00	30.113	30.125	30.130	29.877	29.797	29.638	29.606	29.829	30.075	31.317	29.499	29.499	30.195	29.590	30.083	
	30.102	30.115	30.122	29.862	29.782	29.638	29.638	29.830	30.056	31.670	29.464	29.464	30.096	29.571	30.005	
	30.082	30.099	30.110	29.811	29.732	29.603	29.556	29.779	29.957	31.392	29.482	29.482	30.081	29.540	29.970	
	30.054	30.086	30.102	29.764	29.700	29.558	29.494	29.749	29.958	31.413	29.467	29.467	29.988	29.526	29.863	
	29.960	29.989	29.992	29.674	29.659	29.563	29.435	29.689	29.863	31.766	29.472	29.472	29.813	29.482	29.642	
	29.762	29.835	29.953	29.523	29.555	29.475	29.299	29.602	29.872	31.410	29.465	29.465	29.583	29.395	29.475	
23:00	29.847	29.892	29.974	29.593	29.560	29.480	29.353	29.656	29.867	31.565	29.454	29.454	29.656	29.402	29.560	
	29.852	29.865	29.948	29.548	29.549	29.470	29.309	29.629	29.851	31.376	29.459	29.459	29.629	29.390	29.454	
	29.791	29.836	29.934	29.536	29.504	29.440	29.249	29.584	29.853	31.301	29.446	29.446	29.599	29.343	29.456	
	29.710	29.739	29.869	29.471	29.423	29.375	29.152	29.503	29.855	31.357	29.464	29.464	29.487	29.299	29.331	
	29.534	29.727	29.805	29.343	29.327	29.311	29.023	29.406	29.835	31.443	29.426	29.426	29.247	29.183	28.991	
	29.339	29.614	29.706	29.147	29.195	29.214	28.828	29.307	29.747	31.088	29.424	29.424	29.003	29.068	28.668	
MAY 5 1994	01:00	28.223	29.415	29.638	28.948	29.044	29.108	28.664	29.189	29.543	31.473	29.402	29.402	28.744	28.980	28.472
		28.949	29.289	29.460	28.725	28.869	29.029	28.437	29.045	29.525	31.481	29.418	29.418	28.325	28.837	28.054

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HEAD	MID.	END	HEAD	MID.	END	HEAD	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
MAY 5 1994	02:00	29.058	29.235	29.521	28.851	28.946	29.090	28.531	28.909	29.522	31.294	29.416	29.416	28.419	28.867	28.227
		28.971	29.279	29.545	28.699	28.843	29.019	28.348	28.802	29.531	31.502	29.408	29.408	28.252	28.795	28.076
		28.646	29.086	29.318	28.471	28.662	28.887	28.135	28.671	29.221	31.475	29.388	29.388	27.783	28.615	27.462
		28.725	29.181	29.524	28.470	28.693	28.930	28.163	28.617	29.119	31.403	29.387	29.387	27.923	28.659	27.685
	03:00	28.482	28.939	29.313	28.275	28.498	28.834	27.971	28.577	29.012	31.398	29.384	29.384	27.634	28.530	27.458
		28.416	28.933	29.311	28.240	28.496	28.832	27.888	28.504	29.022	31.300	29.381	29.381	27.520	28.496	27.279
		28.429	28.918	29.341	28.190	28.462	28.798	27.854	28.434	29.067	31.346	29.379	29.379	27.566	28.509	27.133
		28.458	28.898	29.305	28.154	28.428	28.778	27.850	28.414	28.982	31.334	29.360	29.360	27.388	28.458	27.128
	04:00	28.094	28.579	29.149	27.870	28.238	28.669	27.565	28.305	28.902	31.313	29.363	29.363	26.940	28.285	26.601
		27.917	28.385	29.244	27.853	28.141	28.637	27.533	28.221	28.886	31.297	29.345	29.345	26.857	28.219	26.681
		27.821	28.437	29.005	27.677	28.078	28.590	27.405	28.219	28.786	31.377	29.347	29.347	26.651	28.139	26.314
		27.822	28.387	28.942	27.598	28.013	28.558	27.310	28.175	28.771	31.382	29.348	29.348	26.473	28.076	26.120
05:00	27.775	28.380	28.911	27.583	27.952	28.544	27.295	28.091	28.672	31.375	29.320	29.320	26.253	28.001	25.883	
	27.633	28.481	28.849	27.457	27.841	28.461	27.136	28.061	28.642	31.317	29.326	29.326	26.164	27.959	25.778	
	27.541	28.291	28.919	27.431	27.814	28.455	27.143	28.167	28.564	31.748	29.297	29.297	25.924	27.899	25.572	
	27.452	28.266	28.794	27.225	27.738	28.427	26.937	28.159	28.535	31.291	29.270	29.270	25.962	27.839	25.737	
06:00	27.392	28.272	28.831	27.263	27.776	28.400	26.942	28.132	28.514	31.247	29.253	29.253	26.226	27.942	26.096	
	27.556	28.489	28.951	27.364	27.831	28.422	27.110	28.247	28.648	31.253	29.292	29.292	26.226	27.942	26.096	
	27.888	28.792	29.007	27.744	28.046	28.527	27.406	28.307	28.823	31.212	29.286	29.286	26.860	28.143	27.295	
	28.252	28.672	29.132	28.060	28.364	28.685	27.708	28.362	29.052	31.208	29.299	29.299	27.772	28.381	27.788	
07:00	28.701	28.725	29.309	28.493	28.654	28.814	28.126	28.845	29.122	31.229	29.285	29.285	28.701	28.622	28.654	
	29.349	29.431	29.557	28.951	28.997	29.014	28.534	29.125	29.331	31.218	29.294	29.294	28.796	28.919	31.597	
	28.924	29.663	29.717	29.495	29.415	29.285	29.000	29.477	29.699	31.281	29.263	29.263	30.642	29.190	30.531	
	30.486	29.915	29.847	29.943	29.752	29.496	29.416	29.736	29.802	31.242	29.249	29.249	31.463	29.449	31.489	
08:00	30.779	30.078	29.933	30.189	29.934	29.631	29.663	29.902	30.094	31.250	29.272	29.272	31.832	29.615	31.844	
	31.090	30.247	30.071	30.454	30.135	29.737	29.898	30.055	30.104	31.257	29.252	29.252	32.457	29.769	32.489	
	31.426	30.504	30.217	30.822	30.456	29.947	30.249	30.265	30.274	31.294	29.204	29.204	33.001	29.932	33.127	
	31.693	30.772	30.421	31.137	30.628	30.067	30.516	30.389	30.186	31.274	29.232	29.232	33.533	30.086	33.548	
09:00	31.998	30.880	30.469	31.411	30.836	30.199	30.756	30.565	30.386	31.206	29.235	29.235	33.866	30.198	33.944	
	32.494	31.177	30.652	31.701	31.065	30.301	31.050	30.760	30.394	31.246	29.208	29.208	34.851	30.429	34.823	
	32.633	31.268	30.790	31.887	31.125	30.392	31.252	30.679	30.474	31.282	29.208	29.208	34.692	30.572	34.724	
	32.811	31.430	30.795	31.955	31.272	30.476	31.224	30.795	30.481	31.278	29.208	29.208	35.544	30.667	35.796	
10:00	32.467	31.357	30.784	31.849	31.261	30.498	31.102	30.836	30.499	31.104	29.233	29.233	34.385	30.597	34.386	
	32.941	31.605	31.053	32.129	31.398	30.699	31.335	30.862	30.496	31.225	29.208	29.208	35.625	30.763	35.942	

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF	
		HEAD	MID.	END	HEAD	MID.	END	HEAD	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET
MAY 5 1994	11:00	33.343	31.885	31.218	32.488	31.695	30.884	31.758	31.218	30.520	31.041	29.219	35.836	30.980	36.291
		33.321	32.006	31.229	32.756	31.800	30.978	31.958	31.086	30.653	31.228	29.213	36.176	30.990	36.632
		33.699	32.163	31.386	32.829	31.895	31.069	31.989	31.196	30.685	31.145	29.228	36.666	31.248	36.859
		33.074	31.710	31.235	32.471	31.728	30.869	31.837	31.091	30.682	31.185	29.220	35.867	30.997	36.260
		33.645	32.273	31.527	33.048	32.061	31.258	32.543	31.416	30.754	31.113	29.203	36.690	31.219	37.138
		34.151	32.378	31.587	33.251	32.237	31.285	32.332	31.396	30.856	31.381	29.243	37.329	31.449	37.634
	12:00	34.172	32.560	31.863	33.304	32.227	31.354	32.291	31.482	30.899	31.164	29.196	37.789	31.434	38.234
		34.351	32.834	31.852	33.434	32.359	31.461	32.524	31.591	30.905	31.025	29.238	37.605	31.588	38.032
		34.211	32.583	31.728	33.280	32.298	31.379	32.267	31.395	30.917	31.013	29.220	37.530	31.522	37.875
		34.575	32.822	31.951	33.659	32.521	31.522	32.742	31.633	30.994	31.293	29.227	37.677	31.640	38.059
		34.033	32.579	31.850	33.370	32.326	31.470	32.484	31.565	31.015	31.343	29.238	37.149	31.573	37.677
		33.878	32.281	31.616	32.978	32.123	31.235	32.218	31.362	31.034	31.253	29.203	36.319	31.378	36.754
13:00	34.164	32.615	31.784	33.145	32.251	31.381	32.584	31.506	30.967	31.359	29.220	36.697	31.427	37.231	
	33.340	32.011	31.408	32.644	31.868	31.075	32.122	31.169	30.949	31.396	29.202	35.137	31.123	35.531	
	33.582	32.238	31.541	32.823	31.999	31.192	32.000	31.303	30.956	31.241	29.223	35.631	31.192	36.074	
	33.975	32.347	31.682	33.169	32.254	31.349	32.569	31.507	31.085	31.419	29.238	36.854	31.412	36.811	
	34.500	32.888	31.987	33.648	32.605	31.686	32.858	31.781	31.205	31.466	29.242	37.281	31.718	37.475	
	34.253	32.625	31.966	33.502	32.484	31.579	32.704	31.676	31.211	31.282	29.230	37.083	31.708	36.980	
14:00	34.823	33.152	32.155	33.894	32.804	31.726	32.962	31.901	31.283	31.427	29.202	37.869	31.933	37.995	
	34.049	32.627	31.835	33.236	32.390	31.487	32.396	31.613	31.127	31.618	29.183	36.464	31.550	37.302	
	33.709	32.269	31.684	32.996	32.145	31.319	32.286	31.353	31.003	31.637	29.194	35.522	31.351	35.772	
	33.487	32.333	31.611	32.934	32.087	31.303	32.157	31.342	30.998	31.506	29.167	35.473	31.335	35.324	
	33.763	32.150	31.708	33.094	32.191	31.367	32.419	31.437	30.941	31.377	29.199	36.014	31.453	36.054	
	33.976	32.600	31.810	33.258	32.364	31.461	32.427	31.570	30.835	32.050	29.255	36.494	31.667	36.479	
15:00	34.135	32.571	31.746	33.360	32.411	31.494	32.538	31.604	30.819	31.339	29.225	36.337	31.542	36.290	
	33.764	32.364	31.716	33.085	32.237	31.351	32.318	31.486	30.749	31.180	29.205	35.527	31.350	35.245	
	33.157	31.970	31.396	32.540	31.810	31.033	31.907	31.304	30.635	31.417	29.209	34.765	31.049	34.229	
	32.564	31.471	31.037	31.931	31.376	30.700	31.326	31.073	30.652	31.100	29.185	33.544	30.693	33.459	
	31.894	31.068	30.829	31.442	30.933	30.434	30.926	30.839	30.347	31.109	29.205	32.645	30.377	32.591	
	31.549	30.773	30.693	31.185	30.757	30.248	30.757	30.741	30.358	31.363	29.201	32.057	30.216	32.010	
16:00	30.622	30.186	30.400	30.448	30.172	29.915	30.106	30.299	30.385	31.555	29.201	30.837	29.884	30.551	
	29.552	29.375	29.980	29.488	29.418	29.407	29.184	29.694	29.957	31.566	29.215	28.273	29.402	29.002	
	28.809	29.281	29.606	28.793	28.921	29.094	28.504	29.255	29.937	31.229	29.243	28.105	29.000	27.803	
	28.554	28.974	29.527	28.506	28.682	29.033	28.219	29.086	29.754	31.214	29.227	27.541	28.777	27.387	
	28.866	29.265	29.655	28.666	28.794	29.097	28.315	29.177	29.546	31.374	29.188	27.980	28.810	27.995	
MAY 5 1994	17:00	33.343	31.885	31.218	32.488	31.695	30.884	31.758	31.218	30.520	31.041	29.219	35.836	30.980	36.291
		33.321	32.006	31.229	32.756	31.800	30.978	31.958	31.086	30.653	31.228	29.213	36.176	30.990	36.632
		33.699	32.163	31.386	32.829	31.895	31.069	31.989	31.196	30.685	31.145	29.228	36.666	31.248	36.859
		33.074	31.710	31.235	32.471	31.728	30.869	31.837	31.091	30.682	31.185	29.220	35.867	30.997	36.260
		33.645	32.273	31.527	33.048	32.061	31.258	32.543	31.416	30.754	31.113	29.203	36.690	31.219	37.138
		34.151	32.378	31.587	33.251	32.237	31.285	32.332	31.396	30.856	31.381	29.243	37.329	31.449	37.634
18:00	34.172	32.560	31.863	33.304	32.227	31.354	32.291	31.482	30.899	31.164	29.196	37.789	31.434	38.234	
	34.351	32.834	31.852	33.434	32.359	31.461	32.524	31.591	30.905	31.025	29.238	37.605	31.588	38.032	
	34.211	32.583	31.728	33.280	32.298	31.379	32.267	31.395	30.917	31.013	29.220	37.530	31.522	37.875	
	34.575	32.822	31.951	33.659	32.521	31.522	32.742	31.633	30.994	31.293	29.227	37.677	31.640	38.059	
	34.033	32.579	31.850	33.370	32.326	31.470	32.484	31.565	31.015	31.343	29.238	37.149	31.573	37.677	
	33.878	32.281	31.616	32.978	32.123	31.235	32.218	31.362	31.034	31.253	29.203	36.319	31.378	36.754	
19:00	34.164	32.615	31.784	33.145	32.251	31.381	32.584	31.506	30.967	31.359	29.220	36.697	31.427	37.231	
	33.340	32.011	31.408	32.644	31.868	31.075	32.122	31.169	30.949	31.396	29.202	35.137	31.123	35.531	
	33.582	32.238	31.541	32.823	31.999	31.192	32.000	31.303	30.956	31.241	29.223	35.631	31.192	36.074	
	33.975	32.347	31.682	33.169	32.254	31.349	32.569	31.507	31.085	31.419	29.238	36.854	31.412	36.811	
	34.500	32.888	31.987	33.648	32.605	31.686	32.858	31.781	31.205	31.466	29.242	37.281	31.718	37.475	
	34.253	32.625	31.966	33.502	32.484	31.579	32.704	31.676	31.211	31.282	29.230	37.083	31.708	36.980	
MAY 5 1994	18:00	34.823	33.152	32.155	33.894	32.804	31.726	32.962	31.901	31.283	31.427	29.202	37.869	31.933	37.995
		34.049	32.627	31.835	33.236	32.390	31.487	32.396	31.613	31.127	31.618	29.183	36.464	31.550	37.302
		33.709	32.269	31.684	32.996	32.145	31.319	32.286	31.353	31.003	31.637	29.194	35.522	31.351	35.772
		33.487	32.333	31.611	32.934	32.087	31.303	32.157	31.342	30.998	31.506	29.167	35.473	31.335	35.324
		33.763	32.150	31.708	33.094	32.191	31.367	32.419	31.437	30.941	31.377	29.199	36.014	31.453	36.054
		33.976	32.600	31.810	33.258	32.364	31.461	32.427	31.570	30.835	32.050	29.255	36.494	31.667	36.479
19:00	34.135	32.571	31.746	33.360	32.411	31.494	32.538	31.604	30.819	31.339	29.225	36.337	31.542	36.290	
	33.764	32.364	31.716	33.085	32.237	31.351	32.318	31.486	30.749	31.180	29.205	35.527	31.350	35.245	
	33.157	31.970	31.396	32.540	31.810	31.033	31.907	31.304	30.635	31.417	29.209	34.765	31.049	34.229	
	32.564	31.471	31.037	31.931	31.376	30.700	31.326	31.073	30.652	31.100	29.185	33.544	30.693	33.459	
	31.894	31.068	30.829	31.442	30.933	30.434	30.926	30.839	30.347	31.109	29.205	32.645	30.377	32.591	
	31.549	30.773	30.693	31.185	30.757	30.248	30.757	30.741	30.358	31.363	29.201	32.057	30.216	32.010	
19:00	30.622	30.186	30.400	30.448	30.172	29.915	30.106	30.299	30.385	31.555	29.201	30.837	29.884	30.551	
	29.552	29.375	29.980	29.488	29.418	29.407	29.184	29.694	29.957	31.566	29.215	28.273	29.402	29.002	
	28.809	29.281	29.606	28.793	28.921	29.094									

DATE	TIME	12in. TUBE DIAMETER		10in. TUBE DIAMETER		8in. TUBE DIAMETER		SCIL TEMPERATURE DEPTH			TEMPERATURE OF					
		HEAD	MID.	END	HEAD	MID.	END	HEAD	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
	19:00	28.866	29.265	29.655	28.666	28.794	29.097	28.315	29.177	29.546	31.374	31.374	29.188	27.980	28.810	27.995
		28.855	29.294	29.781	29.142	29.126	29.206	28.775	29.445	29.605	31.394	31.394	29.165	28.759	29.000	28.759
		29.003	29.446	29.827	29.174	29.158	29.204	28.854	29.492	29.603	31.299	31.299	29.179	28.838	29.030	28.695
		29.192	29.478	29.792	28.940	28.991	29.126	28.607	29.319	29.575	31.347	31.347	29.134	28.457	28.890	28.289
	20:00	28.923	29.300	29.624	28.715	28.843	29.066	28.332	29.226	29.577	31.392	31.392	29.152	28.076	28.763	27.884

ข้อมูลจากการทดลองช่วงที่ 2 ครั้งที่ 2

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
MAY 6 1994	08:00	29.881	29.386	29.513	29.450	29.306	29.098	29.002	29.205	29.528	31.810	28.885	28.885	30.502	29.066	30.758
		30.210	29.651	29.651	29.762	29.540	29.284	29.300	29.475	29.554	31.789	28.879	28.879	31.260	29.252	31.356
		30.782	30.001	29.874	30.225	29.890	29.507	29.667	29.661	29.554	31.789	28.862	28.862	31.594	29.507	31.796
		30.944	30.100	29.973	30.419	30.021	29.605	29.925	29.826	29.625	31.775	28.881	28.881	32.343	29.574	32.779
	09:00	31.304	30.318	30.223	30.701	30.257	29.712	30.111	30.096	29.636	31.853	28.894	28.894	32.499	29.795	32.837
		31.290	30.479	30.112	30.845	30.319	29.777	30.306	30.195	29.753	31.900	28.845	28.845	33.149	29.859	33.355
		31.487	30.548	30.198	30.978	30.468	29.895	30.437	30.228	29.843	31.602	28.835	28.835	32.901	30.006	33.272
		31.850	30.945	30.642	31.345	30.737	30.164	30.613	30.388	29.892	31.284	28.868	28.868	33.818	30.247	34.145
	10:00	32.014	31.062	30.520	31.505	30.837	30.200	30.822	30.502	29.979	32.069	28.838	28.838	33.694	30.329	34.047
		32.130	31.034	30.545	31.685	30.970	30.222	31.022	30.573	29.993	32.747	28.846	28.846	33.543	30.368	34.028
		32.433	31.254	30.698	31.877	31.147	30.415	31.259	30.683	30.001	30.861	28.925	28.925	33.984	30.479	34.299
		32.818	31.469	30.834	32.073	31.342	30.547	31.406	30.747	30.006	32.368	28.865	28.865	34.573	30.627	35.038
11:00	33.453	31.810	31.155	32.397	31.603	30.761	31.635	30.802	30.112	31.801	28.888	28.888	36.013	30.920	36.432	
	32.726	31.585	30.889	32.203	31.426	30.652	31.553	30.783	30.247	32.328	28.858	28.858	35.652	30.730	36.118	
	32.940	31.624	31.005	32.353	31.482	30.607	31.830	30.907	30.294	32.061	28.877	28.877	35.009	30.799	35.373	
	33.777	32.099	31.449	32.766	31.877	30.988	31.861	31.191	30.333	32.077	28.877	28.877	35.654	31.099	36.100	
12:00	33.823	32.114	31.400	32.985	31.972	31.019	32.129	31.159	30.349	31.518	28.876	28.876	36.077	31.178	36.496	
	33.622	32.172	31.472	32.985	32.003	31.099	32.283	31.332	30.443	31.880	28.869	28.869	36.045	31.235	36.334	
	33.557	32.053	31.386	33.019	32.006	31.069	32.228	31.442	30.552	32.144	28.895	28.895	35.812	31.149	36.223	
	33.953	32.308	31.419	33.148	32.150	31.151	32.372	31.691	30.552	31.825	28.882	28.882	36.127	31.340	36.661	
13:00	33.580	32.219	31.553	32.947	31.998	31.124	32.140	31.547	30.593	31.579	28.847	28.847	35.755	31.220	35.923	
	33.888	32.403	31.609	33.083	32.036	31.148	32.242	31.624	30.766	32.559	28.863	28.863	36.471	31.276	36.801	
	34.071	32.348	31.714	33.336	32.244	31.293	32.577	31.795	30.794	33.005	28.906	28.906	36.502	31.404	37.025	
	34.099	32.628	31.694	33.373	32.312	31.297	32.582	31.805	30.809	32.373	28.900	28.900	36.805	31.425	37.107	
14:00	34.222	32.579	31.699	33.314	32.317	31.350	32.428	31.787	30.831	32.052	28.914	28.914	36.944	31.487	37.339	
	34.411	32.784	31.913	33.779	32.555	31.502	32.872	32.031	30.836	31.844	28.921	28.921	36.993	31.651	37.357	
	34.248	32.605	31.829	33.443	32.368	31.385	32.621	31.845	30.843	32.016	28.933	28.933	36.890	31.511	37.120	
	33.741	32.223	31.477	32.919	32.072	31.153	32.103	31.589	30.835	32.171	28.899	28.899	35.741	31.256	36.183	
15:00	33.882	32.333	31.588	33.124	32.080	31.146	31.889	31.668	30.775	32.061	28.922	28.922	36.588	31.414	36.794	
	34.567	32.680	31.888	33.542	32.530	31.477	32.728	31.928	30.773	31.901	28.896	28.896	36.666	31.706	37.303	
	34.975	33.021	32.149	33.904	32.640	31.658	32.893	32.165	30.681	32.306	28.914	28.914	37.237	31.895	37.614	
	34.536	32.721	31.928	33.621	32.484	31.470	32.721	31.944	30.484	31.956	28.913	28.913	36.800	31.818	37.115	

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			8in. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
MAY 6 1994	17:00	33.756	32.328	31.490	33.061	32.106	31.177	32.296	31.669	30.276	31.951	28.876	28.876	35.678	31.241	36.055
		33.764	32.199	31.486	33.014	32.009	31.179	32.088	31.569	30.208	31.855	28.867	28.867	35.465	31.121	35.905
		33.013	31.747	31.208	32.532	31.715	30.955	31.851	31.493	30.183	32.045	28.874	28.874	34.528	30.890	34.764
		32.673	31.571	31.120	32.221	31.517	30.863	31.714	31.406	30.147	32.028	28.898	28.898	34.047	30.755	34.038
		32.238	31.398	30.954	31.967	31.335	30.650	31.493	31.128	30.071	31.854	28.922	28.922	33.462	30.652	33.432
		32.097	31.146	30.827	31.670	31.129	30.494	31.202	31.085	30.055	32.500	28.906	28.906	32.927	30.446	32.832
	18:00	31.848	30.992	30.690	31.418	30.960	30.354	30.992	30.705	30.059	31.796	28.930	28.930	32.496	30.339	32.387
		31.459	30.729	30.555	31.159	30.714	30.204	30.760	30.335	30.036	31.787	28.887	28.887	32.047	30.140	31.966
		31.246	30.595	30.484	30.913	30.566	30.135	30.517	30.335	30.003	32.196	28.897	28.897	31.690	30.072	31.611
		31.000	30.414	30.398	30.716	30.380	30.000	30.279	30.298	29.983	32.266	28.899	28.899	31.296	29.896	31.185
		30.847	30.391	30.321	30.559	30.275	29.907	30.227	30.119	29.959	31.695	28.895	28.895	31.053	29.845	30.925
		30.691	30.368	30.296	30.390	30.152	29.848	30.111	30.103	29.944	32.045	28.907	28.907	30.804	29.775	30.748
19:00	30.539	30.394	30.269	30.301	30.076	29.784	29.997	29.944	29.815	31.510	28.881	28.881	30.579	29.706	30.485	
	30.524	30.363	30.247	30.216	30.025	29.776	29.923	29.896	29.854	32.023	28.884	28.884	30.550	29.690	30.488	
	30.427	30.264	30.236	30.188	29.965	29.742	29.886	29.852	29.836	31.940	28.882	28.882	30.373	29.641	30.294	
	30.207	30.203	30.175	29.984	29.784	29.632	29.697	29.743	29.819	32.712	28.889	28.889	30.078	29.552	29.917	
	29.958	29.973	30.034	29.769	29.668	29.508	29.475	29.654	29.793	31.375	28.877	28.877	29.652	29.413	29.508	
	29.694	29.436	29.981	29.533	29.503	29.423	29.280	29.485	29.771	31.496	28.855	28.855	29.264	29.294	29.184	
20:00	29.610	29.771	29.976	29.451	29.435	29.387	29.195	29.417	29.783	31.940	28.851	28.851	29.164	29.227	28.972	
	29.826	29.791	30.017	29.635	29.555	29.443	29.380	29.753	29.876	32.156	28.844	28.844	29.554	29.284	29.443	
	29.760	29.790	29.915	29.548	29.500	29.389	29.293	29.567	29.733	31.926	28.838	28.838	29.389	29.245	29.261	
	29.570	29.763	29.936	29.479	29.395	29.363	29.139	29.425	29.695	31.868	28.843	28.843	29.107	29.187	28.964	
	29.285	29.406	29.795	29.441	29.275	29.269	28.917	29.362	29.668	30.206	28.844	28.844	28.549	29.030	28.390	
	29.048	29.393	29.623	29.408	29.216	29.160	28.717	29.215	29.658	31.824	28.832	28.832	28.185	28.909	27.977	
21:00	29.153	29.378	29.726	29.325	29.195	29.185	28.770	29.252	29.647	31.898	28.841	28.841	28.403	28.930	28.307	
	29.525	29.627	29.628	29.307	29.302	29.286	28.998	29.301	29.621	31.695	28.848	28.848	29.063	29.063	28.887	
	29.708	29.673	29.847	29.453	29.353	29.273	29.098	29.367	29.592	31.778	28.854	28.854	29.560	29.114	29.405	
	29.649	29.662	29.856	29.410	29.363	29.265	29.075	29.444	29.727	31.770	28.843	28.843	29.298	29.075	29.139	
	29.463	29.592	29.751	29.240	29.208	29.208	28.936	29.439	29.717	32.416	28.833	28.833	29.305	28.984	29.050	
	29.428	29.592	29.698	29.173	29.124	29.140	28.852	29.322	29.697	32.220	28.829	28.829	29.175	28.916	28.984	
22:00	29.233	29.477	29.663	28.977	29.009	29.105	28.658	29.289	29.609	31.658	28.842	28.842	28.705	28.833	28.642	
	29.099	29.427	29.625	28.892	28.907	29.052	28.540	29.234	29.608	31.987	28.853	28.853	28.508	28.747	28.316	
	28.859	29.202	29.501	28.715	28.779	28.890	28.395	29.109	29.909	31.779	28.820	28.820	28.331	28.671	28.224	
	28.828	29.192	29.466	28.636	28.716	28.840	28.348	29.076	29.771	31.780	28.901	28.901	28.236	28.572	28.012	
MAY 7 1994	23:00															
24:00																

DATE	TIME	12in. TUBE DIAMETER			10in. TUBE DIAMETER			BIN. TUBE DIAMETER			SOIL TEMPERATURE DEPTH			TEMPERATURE OF		
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
01:00		28.718	28.942	29.469	28.526	28.538	28.890	28.191	28.893	29.471	31.779		28.883	28.011	28.523	27.820
		28.542	28.832	29.307	28.370	28.475	28.812	28.044	28.715	29.275	31.955		28.835	27.903	28.396	27.580
		28.531	28.807	29.357	28.289	28.465	28.783	27.968	28.605	29.161	31.736		28.888	27.745	28.384	27.488
		28.339	28.779	29.282	28.147	28.354	28.755	27.843	28.542	29.131	31.675		28.876	27.651	28.292	27.459
		28.327	28.766	29.173	28.103	28.310	28.759	27.784	28.512	29.036	31.629		28.830	27.477	28.246	27.239
		28.319	28.675	29.135	28.097	28.320	28.719	27.759	28.423	29.044	31.735		28.872	27.440	28.257	27.296
		28.261	28.569	29.172	28.023	28.245	28.677	27.717	28.412	29.018	32.539		28.946	27.284	28.181	27.172
		28.080	28.504	29.119	27.888	28.127	28.624	27.566	28.311	29.013	32.087		28.889	27.359	28.096	27.167
		28.156	28.548	29.099	27.998	28.172	28.620	27.594	28.286	29.091	31.971		28.869	27.355	28.106	27.177
		28.121	28.543	29.015	27.863	28.135	28.519	27.558	28.237	28.988	31.695		28.896	27.302	28.071	27.125
		28.025	28.499	29.161	27.800	28.107	28.568	27.482	28.204	28.899	31.633		28.899	27.191	28.041	27.063
		28.044	28.484	29.004	27.820	28.092	28.556	27.451	28.157	28.777	31.876		28.901	27.146	28.060	27.003
28.013	28.453	29.006	27.790	28.061	28.510	27.452	28.153	28.763	31.893		28.887	27.180	28.029	27.020		
27.953	28.393	28.992	27.761	28.033	28.497	27.472	28.186	28.766	31.881		28.890	27.039	28.017	27.104		
27.943	28.347	29.015	27.751	28.055	28.519	27.494	28.157	28.741	32.191		28.865	27.206	28.023	26.933		
27.920	28.243	28.960	27.631	28.000	28.511	27.391	28.064	28.748	32.183		28.874	26.990	27.968	26.796		
27.800	28.257	28.889	27.577	27.945	28.425	27.288	27.961	28.543	31.841		28.883	26.791	27.913	26.613		
27.714	28.218	28.930	27.522	27.890	28.435	27.217	27.837	28.492	31.771		28.893	26.735	27.875	26.494		
27.596	28.119	28.892	27.403	27.768	28.366	27.031	27.635	28.445	31.252		28.870	26.537	27.772	26.313		
27.573	28.109	28.901	27.349	27.813	28.373	27.027	27.725	28.423	31.502		28.832	26.289	27.765	26.176		
27.455	28.143	28.843	27.247	27.744	28.352	26.873	27.452	28.118	31.832		28.828	26.073	27.695	25.929		
27.241	28.121	28.795	27.081	27.609	28.299	26.692	27.210	28.013	30.979		28.837	25.795	27.594	25.763		
27.334	28.135	28.791	27.157	27.671	28.295	26.785	27.599	28.008	31.519		28.849	26.242	27.638	26.015		
27.524	28.243	28.948	27.283	27.797	28.340	27.011	27.756	28.223	31.228		28.846	26.368	27.749	26.383		
27.796	28.284	28.916	27.587	27.924	28.420	27.283	27.904	28.322	31.964		28.830	26.930	27.891	26.994		
28.069	28.445	28.982	27.830	28.101	28.485	27.475	28.156	28.624	31.950		28.832	27.477	28.069	27.605		
28.394	28.602	29.066	28.171	28.330	28.602	27.834	28.229	28.712	31.779		28.821	28.139	28.283	28.523		
28.851	28.651	29.235	28.563	28.644	28.707	28.195	28.565	28.907	31.979		28.798	28.964	28.483	29.123		
29.215	29.228	29.311	28.911	28.880	28.832	28.396	28.741	29.167	31.912		28.795	29.504	28.672	29.663		
29.408	29.406	29.408	29.088	29.024	28.913	28.669	28.951	29.387	31.913		28.779	29.903	28.801	30.259		
29.921	29.514	29.459	29.475	29.314	29.050	29.053	29.185	29.458	31.515		28.798	30.591	29.027	30.766		
30.104	29.632	29.625	29.723	29.514	29.244	29.259	29.364	29.568	32.005		28.774	31.046	29.195	31.411		
30.596	29.769	29.763	30.103	29.767	29.385	29.608	29.762	29.879	32.033		28.787	31.280	29.416	31.525		
31.079	30.217	30.028	30.569	30.124	29.628	29.822	29.812	29.806	31.673		28.810	32.225	29.683	32.502		

MAY
7 1994

DATE	TIME	12in. TUBE DIAMETER		10in. TUBE DIAMETER		8in. TUBE DIAMETER		SOIL TEMPERATURE DEPTH			TEMPERATURE OF					
		HADE	MID.	END	HADE	MID.	END	HADE	MID.	END	30cm.	70cm.	110cm.	INLET	OUTLET	OA
7 1994 MAY	10:00	31.103	30.276	29.975	30.565	30.164	29.673	30.119	29.995	29.864	31.507		28.772	32.250	29.704	32.628
		31.167	30.342	30.055	30.722	30.294	29.784	30.454	30.029	29.964	31.762		28.804	32.662	29.784	33.017
		31.463	30.573	30.191	30.938	30.460	29.372	30.451	30.147	29.986	31.934		28.764	32.986	29.983	33.311
		31.711	30.677	30.343	31.139	30.630	30.040	30.630	30.285	30.065	32.179		28.820	32.821	30.155	34.247
		32.350	31.239	30.618	31.684	31.016	30.349	30.985	30.428	30.087	31.836		28.810	34.582	30.415	34.993
		32.203	31.198	30.566	31.601	30.947	30.184	31.091	30.655	30.097	31.686		28.789	33.790	30.363	34.165
		32.629	31.327	30.660	31.994	31.168	30.421	31.343	30.847	30.178	31.921		28.755	34.795	30.532	35.132
		33.044	31.686	30.953	32.283	31.494	30.615	31.652	31.278	30.335	32.376		28.774	34.976	30.778	35.414
		33.132	31.785	31.086	32.355	31.531	30.736	31.558	31.567	30.724	31.664		28.804	35.028	30.847	35.214
		33.274	31.720	31.086	32.546	31.689	30.758	32.037	31.578	30.924	31.872		28.768	35.200	30.879	35.652
		33.542	32.039	31.212	32.751	31.911	30.933	31.937	31.700	30.935	31.952		28.779	35.493	31.070	35.871
		33.539	32.235	31.463	32.859	31.939	31.066	32.193	31.907	30.952	31.263		28.828	35.668	31.177	36.679

ตารางที่ 2 แสดงความแตกต่างของอุณหภูมิอากาศกับอุณหภูมิปลายท่อย่อยทั้งสามท่อ

(DIFFERENCE OA - END TUBE)

แสดงความแตกต่างของอุณหภูมิที่หัวท่อย่อยและปลายท่อย่อย

(DIFFERENCE HEAD - END TUBE)

อุณหภูมิอากาศที่ผ่านระบบท่อจะไม่มี การเปลี่ยนแปลงหรือมีการเปลี่ยนแปลงน้อยมากจะแสดงค่าข้อมูลที่เข้าใกล้หรือเท่ากับศูนย์

ตาราง 2.1 แสดงข้อมูลความแตกต่างของอุณหภูมิ จากการทดลองวันที่ 28-30 มีนาคม 2537

DATE	TIME	DIFFERENCE			DATE	TIME	DIFFERENCE		
		12in.ID.	10in.ID.	8in.ID.			12in.ID.	10in.ID.	8in.ID.
MARCH 28 1994	06:00	-2.405	-2.777	-2.258	MARCH 28 1994	06:00	-1.080	-0.630	-0.319
		-2.486	-2.840	-3.307			-1.225	-0.660	-1.336
		-2.357	-2.776	-3.242			-1.241	-0.628	-1.352
		-2.163	-2.695	-3.080			-1.177	-0.692	-1.320
	07:00	-1.984	-2.419	-2.853		07:00	-1.161	-0.709	-1.351
		-2.050	-2.468	-2.919			-1.145	-0.724	-1.354
		-1.468	-1.968	-2.434			-1.017	-0.709	-1.416
		-0.468	-0.918	-1.385			-1.152	-0.626	-1.304
	08:00	1.071	0.782	0.332		08:00	-0.467	-0.433	-1.029
		0.983	0.693	0.276			-0.225	-0.451	-0.997
		1.545	1.273	0.807			-0.098	-0.304	-0.868
		1.849	1.576	1.126			0.178	-0.225	-0.771
09:00	1.828	1.651	1.218	09:00	0.273	-0.096	-0.658		
	3.111	2.887	2.534		0.721	0.016	-0.449		
	3.764	3.604	3.188		0.717	0.352	-0.192		
	3.690	3.560	3.192		0.946	0.336	-0.113		
10:00	4.648	4.632	4.199	10:00	1.086	0.690	0.112		
	5.514	5.530	5.097		1.244	0.785	0.288		
	5.575	5.125	5.175		1.455	0.317	0.320		
	6.237	6.301	5.949		1.635	1.024	0.577		
11:00	6.920	6.933	6.565	11:00	1.824	1.217	0.736		
	6.709	6.757	6.405		1.798	1.088	0.608		
	7.801	7.846	7.478		2.110	1.228	0.718		
	6.901	6.995	6.643		2.171	1.308	0.892		
MARCH 28 1994	12:00	7.059	7.267	6.704	MARCH 28 1994	12:00	2.108	1.583	0.844
		6.685	6.781	6.412			1.932	1.168	0.686
		7.679	7.807	7.374			2.012	1.391	0.863
		7.926	7.991	7.589			2.362	1.232	0.813
13:00	7.542	7.700	7.173	13:00	2.633	1.661	1.150		
	8.008	8.166	7.658		2.297	1.674	1.022		
	8.166	8.310	7.799		2.332	1.528	1.086		
	8.178	8.343	7.859		2.452	1.664	1.245		
14:00	8.860	8.856	8.391	14:00	2.952	1.740	1.228		
	8.359	8.584	7.912		2.947	2.074	1.436		
	7.845	8.052	7.540		2.820	1.898	1.292		
	6.796	6.907	6.439		2.232	1.551	1.079		
15:00	6.821	6.948	6.517	15:00	2.161	1.547	1.084		
	5.341	5.453	4.988		1.993	1.389	0.988		
	4.466	4.626	4.148		2.127	1.371	0.943		
	5.671	5.799	5.351		2.137	1.405	0.911		
16:00	4.579	4.707	4.230	16:00	1.855	1.219	0.734		
	3.894	4.005	3.548		1.994	1.213	0.670		
	4.155	4.187	3.660		1.994	1.135	0.655		
	4.173	4.237	3.789		1.838	1.134	0.688		
17:00	3.515	3.569	3.089	17:00	1.660	1.088	0.559		
	2.948	2.950	2.454		1.553	0.991	0.527		
	2.503	2.489	2.025		1.658	0.847	0.431		
	2.042	1.946	1.548		1.182	0.703	0.319		
MARCH 28 1994	18:00	1.727	1.648	1.167	MARCH 28 1994	18:00	1.073	0.641	0.176
		1.389	1.245	0.863			1.101	0.510	0.160
		1.131	0.954	0.558			1.008	0.427	0.019
		0.843	0.620	0.220			0.815	0.384	-0.048
19:00	0.655	0.414	0.000	19:00	0.686	0.286	-0.126		
	0.674	0.434	0.065		0.721	0.258	-0.111		

DATE	TIME	DIFFERENCE OA.-END TUBE			DATE	TIME	DIFFERENCE HEAD-END TUBE		
		12in.ID.	10in.ID.	8in.ID.			12in.ID.	10in.ID.	8in.ID.
		0.738	0.493	0.080			0.836	0.303	-0.141
		0.368	0.140	-0.241			0.531	0.171	-0.242
	20:00	0.400	0.145	-0.240		20:00	0.657	0.210	-0.190
		0.476	0.269	-0.164			0.511	0.176	-0.274
		0.123	-0.197	-0.579			0.515	0.112	-0.369
		-0.225	-0.514	-0.931			0.353	0.032	-0.401
	21:00	-0.096	-0.385	-0.753		21:00	0.369	0.079	-0.352
		-0.595	-0.852	-1.269			0.192	0.032	-0.450
		-0.112	-0.418	-0.786			0.353	0.031	-0.384
		-0.209	-0.482	-0.850			0.320	0.047	-0.335
	22:00	-0.176	-0.482	-0.866		22:00	0.209	-0.032	-0.465
		-0.209	-0.465	-0.866			0.176	0.000	-0.465
		-0.066	-0.306	-0.707			0.191	0.016	-0.433
		-0.113	-0.353	-0.819			0.192	0.032	-0.449
	23:00	-0.145	-0.418	-0.851		23:00	0.160	0.002	-0.466
		-0.081	-0.370	-0.820			0.225	-0.017	-0.497
		-0.276	-0.498	-0.898			0.084	-0.064	-0.514
		-0.194	-0.481	-0.900			0.191	-0.048	-0.482
MARCH	24:00	-0.289	-0.610	-0.995	MARCH	24:00	0.194	-0.064	-0.513
29 1994		-0.227	-0.547	-0.917	29 1994		0.110	-0.097	-0.466
		-0.258	-0.546	-0.996			0.144	-0.047	-0.562
		-0.467	-0.786	-1.237			0.047	0.011	-0.626
	01:00	-0.497	-0.834	-1.285		01:00	0.016	-0.042	-0.594
		-0.708	-1.029	-1.413			-0.097	-0.125	-0.608
		-0.757	-1.079	-1.480			-0.129	-0.109	-0.673
		-0.804	-1.207	-1.624			-0.127	-0.140	-0.674
	02:00	-1.094	-1.464	-1.896		02:00	-0.241	-0.206	-0.770
		-1.128	-1.432	-1.866			-0.290	-0.174	-0.771
		-1.064	-1.482	-1.867			-0.306	-0.268	-0.753
		-1.257	-1.627	-1.947			-0.485	-0.287	-0.820
	03:00	-1.210	-1.611	-2.028		03:00	-0.339	-0.335	-0.852
		-1.515	-1.788	-2.255			-0.547	-0.190	-0.900
		-1.741	-2.047	-2.400			-0.693	-0.303	-0.868
		-2.114	-2.531	-2.933			-0.824	-0.319	-0.980
	04:00	-2.422	-2.921	-3.146		04:00	-1.017	-0.417	-1.079
		-2.486	-2.952	-3.258			-1.162	-0.561	-1.127
		-2.699	-3.213	-3.471			-1.146	-0.674	-1.144
		-2.632	-3.100	-3.421			-1.112	-0.674	-1.208
	05:00	-1.985	-2.387	-2.757		05:00	-0.870	-0.789	-1.143
		-1.903	-2.402	-2.643			-0.823	-0.610	-1.013
		-1.922	-2.404	-2.662			-0.807	-0.644	-1.063
		-2.080	-2.386	-2.756			-0.640	-0.564	-1.062
MARCH	06:00	-1.840	-2.338	-2.678	MARCH	06:00	-0.854	-0.595	-1.064
29 1994		-1.937	-2.340	-2.613	29 1994		-0.886	-0.612	-1.014
		-1.647	-2.001	-2.387			-0.806	-0.532	-1.047
		-1.322	-1.709	-1.999			-0.773	-0.548	-0.967
	07:00	0.434	0.031	-0.305		07:00	-0.645	-0.500	-0.965
		0.531	0.127	-0.225			-0.516	-0.453	-0.965
		1.304	0.998	0.548			-0.224	-0.257	-0.836
		1.824	1.501	1.067			0.066	-0.226	-0.773
	08:00	2.135	1.909	1.427		08:00	0.112	-0.048	-0.659
		2.547	2.240	1.743			0.419	-0.033	-0.610
		3.317	3.091	2.545			0.595	0.128	-0.498
		3.989	3.811	3.282			0.931	0.320	-0.258

DATE	TIME	DIFFERENCE OA.-END TUBE			DATE	TIME	DIFFERENCE HEAD-END TUBE		
		12in.ID.	10in.ID.	8in.ID.			12in.ID.	10in.ID.	8in.ID.
MARCH 29 1994	09:00	4.633	4.503	3.879	MARCH 29 1994	09:00	1.475	0.560	-0.048
		5.127	4.965	4.371			1.620	0.674	-0.017
		5.768	4.964	4.387			2.662	0.914	0.321
		6.048	5.421	4.812			2.564	0.962	0.289
	10:00	6.834	6.289	5.680		10:00	2.419	1.186	0.482
		6.776	6.216	5.558			2.770	1.218	0.576
		6.857	6.359	5.685			2.707	1.314	0.672
		7.439	6.957	6.252			2.929	1.569	0.783
	11:00	7.810	7.537	6.561		11:00	3.278	1.936	0.912
		9.130	9.420	7.866			3.463	2.593	1.022
		8.851	9.234	7.522			3.802	2.862	1.151
		8.514	9.271	7.246			3.673	3.395	1.178
12:00	8.849	9.569	7.599	12:00	3.340	3.168	1.182		
	9.191	9.518	7.483		4.000	3.339	1.196		
	9.040	9.795	7.677		3.687	3.475	1.210		
	8.808	9.562	7.497		3.814	3.519	1.327		
13:00	10.859	11.653	9.294	13:00	4.632	4.170	1.608		
	9.329	10.023	7.931		3.751	3.425	1.223		
	9.690	10.332	8.276		3.846	3.517	1.302		
	10.491	11.239	8.951		4.643	3.977	1.785		
14:00	10.057	10.658	8.448	14:00	4.990	4.004	1.762		
	11.966	11.879	9.896		5.552	4.117	1.974		
	10.555	10.928	8.957		4.763	3.834	1.863		
	10.530	11.154	8.936		5.154	4.446	2.147		
15:00	10.783	11.305	9.255	15:00	4.670	4.128	2.046		
	10.299	10.891	8.733		4.729	4.084	1.974		
	8.834	9.345	7.124		4.381	3.797	1.623		
	9.478	9.957	7.943		4.506	3.796	1.831		
16:00	9.306	9.690	7.580	16:00	5.189	4.020	2.068		
	9.181	9.581	7.472		4.975	4.019	2.100		
	9.001	9.343	7.213		4.744	4.008	1.800		
	8.440	8.824	6.781		4.380	3.700	1.737		
17:00	7.835	8.235	6.207	17:00	4.283	3.628	1.560		
	6.505	6.961	5.044		3.799	3.437	1.647		
	6.078	6.123	4.334		3.701	3.013	1.274		
	5.128	5.445	3.622		3.623	2.968	1.177		
18:00	4.128	4.352	2.708	18:00	2.936	2.475	0.941		
	1.878	2.054	0.599		1.630	1.790	0.296		
	0.649	0.713	-0.535		0.896	1.136	-0.096		
	-0.183	-0.961	-1.328		0.465	-0.009	-0.384		
19:00	-1.140	-1.640	-2.005	19:00	-0.160	-0.019	-0.464		
	-1.434	-1.934	-2.214		-0.193	-0.170	-0.562		
	-1.078	-1.568	-1.883		-0.044	-0.091	-0.534		
	-0.969	-1.673	-1.909		-0.007	-0.181	-0.514		
20:00	-1.092	-1.704	-1.926	20:00	-0.130	-0.243	-0.579		
	-1.340	-1.932	-2.120		-0.146	-0.273	-0.674		
	-1.127	-1.853	-2.007		-0.028	-0.273	-0.527		
	-0.996	-1.673	-1.927		0.000	-0.211	-0.614		
21:00	-0.374	-1.102	-1.368	21:00	0.337	-0.151	-0.513		
	-0.209	-0.954	-1.202		0.355	-0.235	-0.580		
	-0.324	-1.113	-1.251		0.061	-0.308	-0.574		
	-0.241	-1.034	-1.268		0.305	-0.245	-0.577		
22:00	-0.644	-1.385	-1.526	22:00	-0.018	-0.322	-0.561		
	-0.936	-1.561	-1.787		-0.096	-0.320	-0.645		

DATE	TIME	DIFFERENCE OA.-END TUBE			DATE	TIME	DIFFERENCE HEAD-END TUBE		
		12in.ID.	10in.ID.	8in.ID.			12in.ID.	10in.ID.	8in.ID.
		-0.932	-1.672	-1.835			-0.254	-0.400	-0.658
		-1.064	-1.689	-1.851			-0.208	-0.416	-0.707
	23:00	-1.909	-1.864	-2.042		23:00	-1.024	-0.400	-0.674
		-1.769	-2.025	-1.996			-1.076	-0.704	-0.821
		-2.259	-1.897	-2.010			-1.357	-0.481	-0.724
		-2.686	-2.164	-1.996			-1.864	-0.827	-0.772
MARCH	24:00	-1.604	-2.540	-1.882	MARCH	24:00	-0.782	-1.316	-0.820
30 1994		-1.591	-1.799	-1.301	30 1994		-1.285	-1.125	-0.740
		-2.872	-1.638	-1.062			-2.630	-1.171	-0.725
		-1.435	-2.387	-1.305			-1.239	-1.758	-0.740
	01:00	-1.886	-3.164	-1.915		01:00	-1.161	-1.890	-0.739
		-1.712	-3.319	-1.916			-1.035	-2.062	-0.740
		-2.358	-3.188	-1.850			-1.744	-1.996	-0.804
		-2.956	-2.914	-1.801			-2.296	-1.804	-0.787
	02:00	-3.139	-3.141	-1.883		02:00	-2.446	-1.918	-0.772
		-2.808	-3.027	-2.109			-1.988	-1.643	-0.837
		-3.616	-3.449	-2.060			-2.844	-2.063	-0.821
		-3.553	-3.361	-1.963			-2.780	-2.057	-0.771
	03:00	-4.144	-4.080	-2.236		03:00	-3.131	-2.535	-0.771
		-3.890	-3.510	-2.029			-3.083	-2.220	-0.868
		-3.905	-3.090	-2.222			-2.825	-1.593	-0.820
		-3.117	-2.873	-1.753			-2.278	-1.746	-0.723
	04:00	-3.085	-2.768	-1.883		04:00	-2.231	-1.544	-0.758
		-3.263	-2.978	-2.060			-2.295	-1.576	-0.788
		-3.555	-2.848	-2.320			-2.587	-1.268	-0.868
		-3.297	-3.012	-1.997			-2.490	-1.723	-0.803

ตาราง 2.2 แสดงข้อมูลความแตกต่างของอุณหภูมิ จากการทดลองวันที่ 4-6 เมษายน 2537

DATE	TIME	DIFFERENCE			HEAD-END TUBE		
		12in.ID.	10in.ID.	8in.ID.	12in.ID.	10in.ID.	8in.ID.
APRIL 4 1994	18:00	2.097	2.158	2.713	0.603	0.238	0.555
		1.976	2.207	2.119	0.490	-0.151	-0.088
		1.571	1.450	1.375	-0.058	-0.414	-0.075
	19:00	1.072	1.229	1.033	0.715	-0.421	-0.196
		0.903	1.095	1.790	0.570	0.110	0.695
		0.833	0.818	1.364	0.320	-0.095	0.546
	20:00	0.633	0.592	0.903	0.677	-0.106	0.311
		0.343	0.735	0.746	0.736	0.133	0.011
		0.497	1.097	0.913	0.425	0.075	-0.184
	21:00	0.497	0.660	0.407	0.690	-0.494	-0.253
		0.543	1.194	0.412	0.443	0.010	-0.782
		0.755	1.076	1.252	0.879	-0.220	0.176
22:00	-0.215	0.966	-0.004	-0.197	-0.607	-0.970	
	-0.090	0.060	-0.211	0.681	-0.423	-0.271	
	-0.608	-0.603	-0.623	0.068	-0.030	-0.020	
23:00	-0.179	0.063	-0.203	0.813	-0.346	-0.266	
	-0.229	-0.029	-0.264	0.539	-0.231	-0.235	
	-0.139	-0.253	-0.396	0.364	-0.216	-0.143	
APRIL 5 1994	24:00	0.604	0.684	0.688	0.080	-0.260	0.004
		-0.415	-0.386	-0.482	0.111	-0.292	-0.096
		-0.575	-0.272	-0.380	0.554	-0.253	-0.108
	01:00	-0.855	-0.666	-0.891	0.408	-0.383	-0.225
		-0.570	-0.599	-0.733	0.023	-0.307	-0.134
		-1.004	-0.830	-0.868	0.090	-0.181	-0.038
	02:00	-1.309	-1.033	-1.082	0.109	-0.061	-0.049
		-1.112	-1.941	-0.966	0.016	-0.095	0.975
		-0.892	-1.763	-1.020	0.071	-0.266	0.743
	03:00	-0.790	-1.018	-0.814	-0.072	-0.215	0.204
		-1.446	-1.588	-1.205	0.029	-0.144	0.383
		-1.136	-1.991	-0.347	0.104	0.110	1.644
04:00	-0.915	-2.279	-0.869	0.360	-0.644	1.410	
	-1.583	-2.551	-1.553	-0.114	-0.242	0.958	
	-1.615	-2.003	-1.587	-0.028	-0.221	0.416	
05:00	-1.776	-2.044	-1.696	-0.258	0.112	0.348	
	-1.787	-2.371	-2.037	-1.546	-0.248	0.334	
	-1.489	-2.044	-1.569	-0.376	-0.223	0.475	
06:00	-2.487	-2.980	-2.711	-0.357	-0.215	0.269	
	-2.805	-2.992	-2.976	-0.407	-0.170	0.016	
	-2.670	-2.841	-3.150	-0.366	-0.107	-0.309	
07:00	-2.141	-2.400	-2.407	-0.262	-0.188	-0.007	
	-2.516	-2.811	-2.795	-0.330	-0.184	0.016	
	-2.553	-2.616	-2.846	-0.405	-0.053	-0.230	
APRIL 5 1994	08:00	-2.108	-2.314	-2.350	-0.322	0.350	-0.036
		-2.463	-2.715	-2.845	-0.245	-0.257	-0.130
		-2.528	-2.558	-2.679	-0.488	-0.027	-0.121
	09:00	-2.519	-2.730	-2.951	-0.392	-0.247	-0.221
		-2.474	-2.740	-2.736	-0.346	-0.229	0.004
		-2.598	-2.825	-2.952	-0.338	-0.268	-0.127
	10:00	-1.716	-1.980	-2.354	-0.760	-0.139	-0.374
		-1.683	-2.045	-2.278	-0.831	-0.140	-0.233
		-0.864	-1.181	-1.684	-0.626	-0.226	-0.503
	11:00	-1.239	-0.857	-1.035	-1.067	0.425	-0.178
		0.032	-0.114	-0.319	-0.271	-0.646	-0.205
		-0.074	0.363	0.140	-0.691	0.362	-0.223
12:00	0.784	0.762	1.372	0.258	-0.015	0.610	
	1.220	1.319	1.193	0.354	-0.036	-0.126	

DATE	TIME	DIFFERRANCE OA.-END TUBE			DATE	TIME	DIFFERRANCE HEAD-END TUBE		
		12in.ID.	10in.ID.	8in.ID.			12in.ID.	10in.ID.	8in.ID.
APRIL 5 1994	08:00	1.263	1.257	1.354	APRIL 5 1994	08:00	0.414	-0.173	0.097
		2.424	2.538	3.023			0.625	0.026	0.485
		2.792	2.985	2.825			0.800	-0.191	-0.160
		2.453	2.684	2.555			0.778	-0.185	-0.129
	09:00	2.330	1.772	2.523		09:00	0.713	-0.128	0.751
		3.481	3.705	3.673			1.048	-0.400	-0.032
		3.095	2.991	3.446			1.102	-0.144	0.455
		3.050	3.479	3.497			1.183	-0.288	0.018
	10:00	3.693	3.060	4.044		10:00	1.206	-0.240	0.984
		3.829	4.308	4.179			0.798	-0.288	-0.129
		4.164	3.964	4.881			1.135	0.416	0.917
		5.794	5.728	5.691			2.349	-1.023	-0.037
	11:00	6.168	6.628	6.836		11:00	2.277	-0.545	0.208
		6.494	6.600	7.075			2.164	-0.196	0.475
		6.399	7.569	7.474			1.580	0.045	-0.095
		7.137	7.822	7.700			2.763	-0.447	-0.122
	12:00	7.180	7.694	7.502		12:00	2.366	-0.539	-0.192
		6.715	7.373	7.354			2.052	-0.363	-0.019
		6.550	7.182	7.228			2.770	-0.547	0.046
		7.845	8.675	8.413			2.811	-0.062	-0.262
	13:00	8.311	9.477	8.802		13:00	3.141	-0.750	-0.675
		8.728	9.644	9.323			2.714	-0.476	-0.321
		10.019	11.042	10.393			3.533	-1.462	-0.649
		9.557	10.982	10.129			2.755	-0.775	-0.853
	14:00	9.322	10.040	9.897		14:00	2.690	-0.780	-0.143
		9.995	10.015	9.864			3.041	-1.200	-0.151
		9.393	9.830	9.702			3.214	-1.017	-0.128
		8.905	9.645	9.340			2.957	-0.860	-0.305
	15:00	8.825	9.525	9.416		15:00	3.004	-0.796	-0.109
		8.812	9.456	9.180			3.222	-0.823	-0.276
		8.187	8.900	8.628			2.667	-0.753	-0.272
		7.983	8.768	8.338			2.873	-0.713	-0.430
	16:00	8.239	8.877	8.494		16:00	2.608	-1.009	-0.383
		8.311	8.902	8.731			2.956	-0.829	-0.171
		8.431	9.154	8.787			2.972	-0.748	-0.367
		7.808	8.303	8.015			2.740	-0.829	-0.288
17:00	6.945	7.471	7.073	17:00	2.676	-0.814	-0.398		
	5.672	6.168	5.852		2.438	-0.701	-0.316		
	4.651	5.072	4.215		2.300	-0.657	-0.857		
	3.723	4.061	3.713		2.071	-0.571	-0.348		
18:00	3.313	3.590	3.292	18:00	1.704	-0.570	-0.298		
	2.943	3.187	2.889		2.110	-0.533	-0.298		
	1.824	2.038	1.971		1.226	-0.442	-0.067		
	1.611	1.771	1.690		1.218	0.004	-0.081		
19:00	1.481	1.673	1.354	19:00	1.114	-0.479	-0.319		
	1.177	1.270	1.036		0.975	-0.447	-0.234		
	0.909	0.959	0.740		0.810	-0.317	-0.219		
	0.506	0.940	0.780		0.493	0.050	-0.160		
20:00	0.617	0.816	0.385	20:00	0.904	-0.091	-0.431		
	0.500	0.723	0.297		1.062	-0.380	-0.426		
	0.932	0.878	0.683		0.586	-0.342	-0.195		
	1.181	1.144	0.671		0.874	-0.391	-0.473		
21:00	0.309	0.647	0.665	21:00	1.127	-0.344	0.018		
	-0.393	0.779	0.561		-0.664	0.809	-0.218		
	-0.527	0.652	0.430		-0.158	0.824	-0.222		
	0.402	1.590	0.705		0.151	-0.107	-0.885		

DATE	TIME	DIFFERRANCE OA.-END TUBE			DATE	TIME	DIFFERRANCE HEAD-END TUBE		
		12in.ID.	10in.ID.	8in.ID.			12in.ID.	10in.ID.	8in.ID.
APRIL 6 1994	22:00	0.054	-0.182	0.028	APRIL 6 1994	22:00	0.746	-0.914	0.210
		-0.013	-0.030	-0.414			0.104	-0.211	-0.384
		-0.301	-0.003	-0.263			0.614	0.397	-0.260
	23:00	0.864	1.181	0.558		23:00	0.802	0.035	-0.623
		0.312	0.159	-0.388			0.745	-0.830	-0.547
		0.094	0.227	-0.396			0.861	-1.084	-0.623
	24:00	0.078	0.016	-0.258		24:00	-0.890	-0.220	-0.274
		-0.228	-0.033	-0.440			0.332	-0.307	-0.407
		0.201	0.411	-0.287			1.067	-0.663	-0.698
	01:00	-0.129	-0.160	-0.448		01:00	0.120	-0.535	-0.288
		0.018	-0.943	-1.094			0.975	-1.266	-0.151
		-0.400	-0.311	-0.742			0.063	-0.379	-0.431
02:00	-1.045	-0.873	-1.223	02:00	0.003	-0.168	-0.350		
	-1.935	-1.660	-1.724		0.115	-0.077	-0.064		
	-1.401	-1.100	-1.612		-0.113	-0.205	-0.512		
03:00	-0.996	-0.861	-1.126	03:00	-0.167	-0.146	-0.265		
	-0.663	-0.564	-0.949		-0.234	-0.186	-0.385		
	-1.143	-1.478	-1.332		-0.387	-0.277	0.146		
04:00	-0.162	-1.180	-1.518	04:00	0.769	-1.217	-0.338		
	-1.986	-1.983	-2.838		-0.199	-0.195	-0.855		
	-1.552	-1.444	-1.829		-0.213	-0.068	-0.385		
05:00	-1.717	-1.693	-2.083	05:00	-0.321	-0.185	-0.390		
	-1.490	-1.560	-1.889		-0.391	-0.229	-0.329		
	-1.530	-1.647	-2.103		-1.479	0.034	-0.456		
06:00	-1.314	-1.561	-1.634	06:00	-1.196	-0.605	-0.073		
	-1.634	-1.871	-2.202		-0.703	-0.143	-0.331		
	-1.873	-2.164	-2.371		-0.813	-0.180	-0.207		
07:00	-1.912	-2.170	-2.536	07:00	-0.915	-0.174	-0.366		
	-1.664	-1.952	-2.174		-0.996	-0.224	-0.222		
	-1.582	-1.847	-2.222		-0.803	-0.225	-0.375		
08:00	-2.380	-2.237	-2.462	08:00	-1.202	0.302	-0.225		
	-1.550	-1.985	-2.054		-0.349	-0.175	-0.069		
	-1.691	-1.947	-2.140		-0.869	-0.065	-0.193		
09:00	-1.610	-1.879	-2.107	09:00	-0.696	-0.128	-0.228		
	-1.431	-1.751	-1.992		-0.726	-0.110	-0.241		
	-1.318	-1.563	-1.752		-0.927	-0.086	-0.189		
10:00	-0.804	-1.124	-1.360	10:00	-0.568	-0.170	-0.236		
	0.120	-0.136	-0.250		-0.570	-0.144	-0.114		
	0.393	0.249	0.073		-0.496	-0.113	-0.176		
11:00	0.662	0.466	0.390	11:00	-0.257	-0.096	-0.076		
	1.879	1.812	1.452		0.048	-0.192	-0.360		
	2.504	2.537	2.200		0.996	-0.132	-0.337		
12:00	3.961	3.442	3.270	12:00	1.044	-0.739	-0.172		
	4.331	4.539	4.235		0.927	-0.238	-0.304		
	4.303	4.527	4.382		0.936	-0.257	-0.145		
13:00	4.874	5.130	4.421	13:00	0.694	-0.304	-0.709		
	5.176	5.464	5.174		1.487	-0.308	-0.290		
	5.147	5.797	5.622		0.800	0.317	-0.175		
14:00	4.872	5.830	5.770	14:00	1.171	0.884	-0.060		
	5.776	6.141	5.868		2.041	-0.418	-0.273		
	6.217	6.599	6.332		2.119	-0.529	-0.267		
15:00	6.101	6.608	6.223	15:00	1.150	-0.401	-0.385		
	6.169	6.456	6.247		2.344	-0.595	-0.209		
	6.197	6.758	6.324		2.369	-0.492	-0.434		
16:00	6.978	7.486	7.103	16:00	2.561	0.010	-0.383		
	6.932	7.455	7.165		2.887	-0.622	-0.290		

DATE	TIME	DIFFERRANCE OA.-END TUBE		
		12in.ID.	10in.ID.	8in.ID.
APRIL 6 1994	12:00	6.441	7.080	6.537
		6.468	7.061	6.586
		6.751	7.815	6.828
		7.156	7.746	7.281
	13:00	7.513	8.005	7.590
		7.498	8.610	7.526
		8.637	9.760	9.313
		7.997	8.635	8.094
	14:00	8.099	8.495	8.225
		7.820	8.362	7.979
		7.430	8.113	7.601
		7.737	8.278	8.008
	15:00	7.231	7.776	7.345
		6.784	7.374	6.992
		7.359	7.949	7.583
		7.472	7.939	7.686
	16:00	7.157	7.667	7.221
		7.105	7.537	7.222
		6.919	7.334	7.064
		6.815	7.164	6.768
17:00	6.382	7.413	6.490	
	4.279	5.310	4.299	
	3.555	3.971	3.608	
	3.206	3.555	3.177	
APRIL 6 1994	18:00	2.990	3.371	3.072

DATE	TIME	DIFFERRANCE HEAD-END TUBE		
		12in.ID.	10in.ID.	8in.ID.
APRIL 6 1994	12:00	2.628	-0.656	-0.543
		2.630	-0.583	-0.475
		1.975	-0.679	-0.987
		2.525	0.135	-0.465
	13:00	2.075	-0.639	-0.415
		2.598	-0.769	-1.084
		2.167	-0.184	-0.447
		2.847	-0.712	-0.541
	14:00	3.144	-0.929	-0.270
		2.590	-0.794	-0.383
		2.957	-0.862	-0.512
		2.936	-0.859	-0.270
	15:00	2.981	-0.747	-0.431
		2.878	-0.757	-0.382
		2.966	-0.653	-0.366
		2.924	-0.809	-0.253
	16:00	2.687	-0.717	-0.446
		2.797	-0.783	-0.315
		2.783	-0.876	-0.270
		2.743	-0.880	-0.396
17:00	2.260	-0.865	-0.923	
	2.502	-0.069	-1.011	
	2.184	-0.709	-0.363	
	1.976	-0.488	-0.378	
APRIL 6 1994	18:00	1.806	-0.515	-0.299

ตาราง 2.3 แสดงข้อมูลความแตกต่างของอุณหภูมิจากการทดลองวันที่ 4-5 พฤษภาคม 2537

DATE	TIME	DIFFERENCE OA.-END TUBE			DIFFERENCE HEAD-END TUBE		
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
MAY 4 1994	18:00	1.348	1.731	1.618	0.858	0.791	0.269
		1.214	1.612	1.356	0.752	0.797	0.285
		0.916	1.332	1.049	0.615	0.616	0.084
		0.843	1.278	0.930	0.573	0.595	0.094
	19:00	0.825	1.271	0.925	0.524	0.557	0.072
		0.747	1.161	0.832	0.493	0.524	0.078
		0.667	1.097	0.736	0.461	0.508	0.046
		0.664	1.110	0.832	0.461	0.510	0.114
	20:00	0.797	1.249	0.900	0.493	0.580	0.013
		0.748	1.177	0.898	0.510	0.543	-0.026
		0.525	0.955	0.677	0.430	0.429	-0.083
		0.478	0.892	0.478	0.367	0.447	-0.271
	21:00	0.335	0.795	0.401	0.257	0.381	-0.198
		0.317	0.747	0.399	0.286	0.398	-0.157
		0.132	0.609	0.268	0.196	0.391	-0.236
		0.233	0.650	0.355	0.057	0.315	-0.202
	22:00	0.019	0.446	0.133	0.020	0.287	-0.281
		-0.056	0.398	-0.007	-0.002	0.255	-0.404
		-0.047	0.445	0.008	-0.017	0.239	-0.469
		-0.117	0.367	-0.051	-0.020	0.224	-0.418
23:00	-0.140	0.367	0.013	-0.028	0.208	-0.401	
	-0.239	0.305	-0.095	-0.048	0.206	-0.464	
	-0.350	0.079	-0.221	-0.032	0.111	-0.428	
	-0.478	0.000	-0.397	-0.191	0.048	-0.573	
MAY 5 1994	24:00	-0.414	0.080	-0.307	-0.127	0.113	-0.514
		-0.494	-0.016	-0.397	-0.096	0.078	-0.542
		-0.478	0.016	-0.397	-0.143	0.096	-0.604
		-0.538	-0.044	-0.524	-0.159	0.096	-0.703
	01:00	-0.814	-0.320	-0.844	-0.271	0.032	-0.812
		-1.038	-0.546	-1.079	-0.367	-0.067	-0.919
		-1.166	-0.636	-1.071	-0.415	-0.160	-0.879
		-1.406	-0.975	-1.471	-0.511	-0.304	-1.088
	02:00	-1.294	-0.863	-1.295	-0.463	-0.239	-0.991
		-1.469	-0.943	-1.455	-0.574	-0.320	-1.183
		-1.856	-1.425	-1.759	-0.672	-0.416	-1.086
		-1.839	-1.245	-1.434	-0.799	-0.460	-0.956
	03:00	-1.855	-1.376	-1.554	-0.831	-0.559	-1.041
		-2.032	-1.553	-1.743	-0.895	-0.592	-1.134
		-2.208	-1.665	-1.934	-0.912	-0.608	-1.213
		-2.177	-1.650	-1.854	-0.847	-0.624	-1.132
	04:00	-2.548	-2.068	-2.301	-1.055	-0.799	-1.337
		-2.563	-1.956	-2.205	-1.327	-0.784	-1.353
		-2.691	-2.276	-2.472	-1.184	-0.913	-1.381
		-2.822	-2.438	-2.651	-1.120	-0.960	-1.461
05:00	-2.868	-2.501	-2.629	-1.136	-0.961	-1.377	
	-2.966	-2.598	-2.759	-1.216	-1.024	-1.506	
	-3.141	-2.677	-2.786	-1.378	-1.024	-1.421	
	-3.222	-2.855	-2.963	-1.342	-1.202	-1.598	
MAY 5 1994	06:00	-3.094	-2.663	-2.777	-1.439	-1.137	-1.572
		-2.855	-2.326	-2.552	-1.395	-1.058	-1.538
		-1.712	-1.232	-1.528	-1.119	-0.783	-1.417
		-1.344	-0.897	-1.264	-0.880	-0.625	-1.344
07:00	-0.655	-0.160	-0.468	-0.608	-0.321	-0.996	
	2.040	2.583	2.266	-0.208	-0.063	-0.797	

DATE	TIME	DIFFERENCE OA.-END TUBE			DIFFERENCE HEAD-END TUBE		
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
		0.814	1.246	0.832	0.207	0.210	-0.699
		1.642	1.993	1.687	0.639	0.447	-0.386
	08:00	1.911	2.213	1.750	0.846	0.558	-0.431
		2.418	2.752	2.385	1.019	0.717	-0.206
		2.910	3.180	2.853	1.209	0.875	-0.025
		3.127	3.461	3.362	1.272	1.050	0.330
	09:00	3.475	3.745	3.558	1.529	1.212	0.370
		4.171	4.522	4.429	1.842	1.400	0.656
		3.934	4.332	4.250	1.843	1.495	0.778
		5.001	5.320	5.315	2.016	1.479	0.743
	10:00	3.602	3.888	3.887	1.683	1.351	0.603
		4.889	5.243	5.446	1.888	1.430	0.839
		5.073	5.407	5.771	2.125	1.604	1.238
		5.403	5.654	5.979	2.092	1.778	1.305
	11:00	5.473	5.790	6.174	2.313	1.760	1.304
		5.025	5.391	5.578	1.839	1.602	1.155
		5.611	5.880	6.384	2.118	1.790	1.789
		6.047	6.349	6.778	2.564	1.966	1.476
MAY	12:00	6.371	6.880	7.335	2.309	1.950	1.392
5 1994		6.180	6.571	7.127	2.499	1.973	1.619
		6.147	6.496	6.958	2.483	1.901	1.350
		6.108	6.537	7.065	2.624	2.137	1.748
	13:00	5.827	6.207	6.662	2.183	1.900	1.469
		5.138	5.519	5.720	2.262	1.743	1.184
		5.447	5.850	6.264	2.380	1.764	1.617
		4.123	4.456	4.582	1.932	1.569	1.173
	14:00	4.533	4.882	5.118	2.041	1.631	1.044
		5.129	5.462	5.726	2.293	1.820	1.484
		5.488	5.789	6.270	2.513	1.962	1.653
		5.012	5.401	5.769	2.285	1.923	1.493
	15:00	5.840	6.269	6.712	2.668	2.168	1.679
		5.467	5.815	6.175	2.214	1.749	1.269
		4.088	4.453	4.769	2.025	1.677	1.283
		3.713	4.021	4.326	1.876	1.631	1.159
	16:00	4.346	4.687	5.113	2.055	1.727	1.478
		4.669	5.018	5.644	2.166	1.797	1.592
		4.544	4.796	5.471	2.389	1.866	1.719
		3.529	3.894	4.496	2.048	1.734	1.569
	17:00	2.833	3.196	3.594	1.761	1.507	1.272
		2.422	2.759	2.807	1.527	1.231	0.674
		1.762	2.157	2.244	1.065	1.008	0.579
		1.317	1.762	1.652	0.856	0.937	0.399
MAY	18:00	0.151	0.636	0.166	0.222	0.533	-0.279
5 1994		-0.978	-0.405	-0.955	-0.428	0.081	-0.773
		-1.803	-1.291	-2.134	-0.797	-0.301	-1.433
		-2.140	-1.646	-2.367	-0.973	-0.527	-1.535
	19:00	-1.660	-1.102	-1.551	-0.789	-0.431	-1.231
		-1.022	-0.447	-0.846	-0.926	-0.064	-0.830
		-1.132	-0.509	-0.908	-0.824	-0.030	-0.749
		-1.503	-0.837	-1.286	-0.600	-0.186	-0.968
	20:00	-1.740	-1.182	-1.693	-0.701	-0.351	-1.245

ตาราง 2.4 แสดงข้อมูลความแตกต่างของอุณหภูมิ จากการทดลองวันที่ 6-7 พฤษภาคม 2537

DATE	TIME	DIFFERENCE OA-END TUBE			DIFFERENCE HEAD-END TUBE		
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
MAY 6 1994	08:00	1.245	1.660	1.230	0.368	0.352	-0.526
		1.705	2.072	1.802	0.559	0.478	-0.254
		1.922	2.289	2.242	0.908	0.718	0.113
		2.806	3.174	3.154	0.971	0.814	0.300
	09:00	2.614	3.125	3.201	1.081	0.989	0.475
		3.243	3.578	3.602	1.178	1.068	0.553
		3.074	3.377	3.429	1.289	1.083	0.594
		3.503	3.981	4.253	1.208	1.181	0.721
	10:00	3.527	3.847	4.068	1.494	1.305	0.843
		3.483	3.806	4.035	1.585	1.463	1.029
		3.601	3.884	4.298	1.735	1.462	1.258
		4.204	4.491	5.032	1.984	1.526	1.400
	11:00	5.277	5.671	6.320	2.298	1.636	1.523
		5.229	5.466	5.871	1.837	1.551	1.306
		4.368	4.766	5.079	1.935	1.746	1.536
		4.651	5.112	5.767	2.328	1.778	1.528
	12:00	5.096	5.477	6.147	2.423	1.966	1.780
		4.862	5.235	5.891	2.150	1.886	1.840
		4.837	5.154	5.671	2.171	1.950	1.676
		5.242	5.510	6.109	2.534	1.997	1.820
	13:00	4.370	4.799	5.330	2.027	1.823	1.547
		5.192	5.653	6.035	2.279	1.935	1.476
		5.311	5.732	6.231	2.357	2.043	1.783
		5.413	5.810	6.298	2.405	2.076	1.773
14:00	5.640	5.989	6.508	2.523	1.964	1.597	
	5.444	5.855	6.521	2.498	2.277	2.036	
	5.291	5.735	6.277	2.419	2.058	1.773	
	4.706	5.030	5.348	2.264	1.766	1.268	
15:00	5.206	5.648	6.019	2.294	1.978	1.114	
	5.415	5.826	6.530	2.679	2.065	1.955	
	5.465	5.956	6.933	2.826	2.246	2.212	
	5.187	5.645	6.631	2.608	2.151	2.237	
16:00	5.398	5.841	6.975	2.629	2.120	2.266	
	4.565	4.878	5.779	2.266	1.884	2.020	
	4.419	4.726	5.697	2.278	1.835	1.880	
	3.556	3.808	4.581	1.805	1.576	1.668	
17:00	2.918	3.235	3.891	1.553	1.418	1.567	
	2.478	2.782	3.361	1.284	1.317	1.422	
	2.005	2.338	2.777	1.270	1.176	1.153	
	1.697	2.033	2.328	1.158	1.064	0.933	
18:00	1.411	1.762	1.930	0.904	0.955	0.724	
	1.127	1.476	1.608	0.762	0.778	0.514	
	0.787	1.185	1.202	0.602	0.716	0.396	
	0.604	1.018	0.966	0.526	0.652	0.268	
19:00	0.452	0.900	0.804	0.395	0.542	0.167	
	0.216	0.701	0.570	0.270	0.517	0.082	
	0.241	0.712	0.634	0.277	0.440	0.069	
	0.058	0.552	0.458	0.191	0.446	0.050	
20:00	-0.258	0.285	0.098	0.032	0.352	-0.122	
	-0.526	0.000	-0.285	-0.076	0.261	-0.318	
	-0.797	-0.239	-0.587	-0.287	0.110	-0.491	
	-1.004	-0.415	-0.811	-0.366	0.064	-0.588	

DATE	TIME	DIFFERENCE OA-END TUBE			DIFFERENCE HEAD-END TUBE			
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.	
MAY 7 1994	21:00	-0.574	0.000	-0.433	-0.191	0.192	-0.496	
		-0.654	-0.128	-0.472	-0.155	0.159	-0.440	
		-0.972	-0.399	-0.731	-0.366	0.116	-0.556	
	22:00	-1.405	-0.879	-1.278	-0.510	0.172	-0.751	
		-1.646	-1.183	-1.681	-0.575	0.248	-0.941	
		-1.419	-0.878	-1.340	-0.573	0.140	-0.877	
	23:00	-0.941	-0.399	-0.734	-0.303	0.021	-0.623	
		-0.442	0.132	-0.187	-0.139	0.180	-0.494	
		-0.717	-0.126	-0.588	-0.207	0.145	-0.652	
	MAY 7 1994	24:00	-0.701	-0.158	-0.667	-0.288	0.032	-0.781
			-0.714	-0.156	-0.713	-0.270	0.033	-0.845
			-1.021	-0.463	-0.967	-0.430	-0.128	-0.951
01:00		-1.309	-0.736	-1.492	-0.526	-0.160	-1.268	
		-1.277	-0.766	-1.685	-0.642	-0.275	-1.514	
		-1.454	-0.928	-1.759	-0.638	-0.304	-1.423	
02:00		-1.649	-1.070	-1.651	-0.751	-0.364	-1.280	
		-1.727	-1.232	-1.695	-0.765	-0.442	-1.231	
		-1.869	-1.295	-1.673	-0.826	-0.494	-1.193	
03:00		-1.823	-1.296	-1.672	-0.943	-0.608	-1.288	
		-1.934	-1.520	-1.797	-0.846	-0.656	-1.252	
		-1.839	-1.423	-1.748	-0.816	-0.622	-1.285	
04:00	-2.000	-1.505	-1.846	-0.911	-0.654	-1.301		
	-1.952	-1.457	-1.846	-1.039	-0.736	-1.447		
	-1.922	-1.443	-1.914	-0.943	-0.722	-1.497		
05:00	-1.890	-1.394	-1.863	-0.894	-0.656	-1.430		
	-2.098	-1.505	-1.836	-1.136	-0.768	-1.417		
	-2.001	-1.553	-1.774	-0.960	-0.736	-1.326		
06:00	-1.986	-1.490	-1.743	-0.993	-0.720	-1.311		
	-1.888	-1.393	-1.662	-1.039	-0.736	-1.294		
	-2.082	-1.586	-1.808	-1.072	-0.768	-1.247		
07:00	-2.164	-1.715	-1.952	-1.040	-0.880	-1.357		
	-2.276	-1.812	-1.930	-1.089	-0.848	-1.255		
	-2.436	-1.941	-1.998	-1.216	-0.913	-1.275		
08:00	-2.579	-2.053	-2.133	-1.296	-0.963	-1.415		
	-2.725	-2.197	-2.247	-1.328	-1.024	-1.396		
	-3.014	-2.423	-2.189	-1.488	-1.105	-1.245		
09:00	-3.032	-2.536	-2.250	-1.554	-1.218	-1.321		
	-2.775	-2.279	-1.992	-1.457	-1.138	-1.223		
	-2.565	-1.957	-1.840	-1.424	-1.057	-1.212		
10:00	-1.922	-1.426	-1.328	-1.120	-0.833	-1.039		
	-1.377	-0.880	-1.019	-0.913	-0.655	-1.149		
	-0.543	-0.079	-0.189	-0.672	-0.431	-0.878		
MAY 7 1994	07:00	-0.112	0.416	0.216	-0.384	-0.144	-0.712	
		0.352	0.831	0.496	-0.096	0.079	-0.771	
		0.861	1.356	0.882	0.000	0.175	-0.718	
08:00	1.307	1.707	1.308	0.462	0.416	-0.399		
	1.786	2.167	1.843	0.479	0.479	-0.309		
	1.757	2.140	1.646	0.828	0.718	-0.271		
09:00	2.474	2.874	2.696	1.051	0.941	0.016		
	2.653	2.955	2.764	1.128	0.892	0.255		
	2.962	3.233	3.053	1.112	0.938	0.490		
10:00	3.120	3.439	3.325	1.272	1.066	0.475		
	3.904	4.207	4.182	1.368	1.099	0.565		
	4.375	4.644	4.906	1.732	1.335	0.898		

DATE	TIME	DIFFERENCE OA-END TUBE			DIFFERENCE HEAD-END TUBE		
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
		3.599	3.981	4.068	1.637	1.417	0.994
		4.472	4.711	4.954	1.969	1.573	1.165
	11:00	4.461	4.799	5.079	2.091	1.668	1.317
		4.128	4.478	4.490	2.046	1.620	0.934
		4.566	4.884	4.728	2.188	1.778	1.113
7 1994		4.659	4.938	4.936	2.330	1.818	1.002
MAY	12:00	5.216	5.613	5.727	2.076	1.793	1.241

ตารางที่ 3 การแสดงปริมาณความร้อนที่ลดหรือเพิ่มจากการเก็บข้อมูลการทดลอง

โดยการคำนวณ

จากสมการ

$$Q = 1.08 * CFM * (T_o - T_i)$$

โดยปริมาณความร้อนเป็นบวก แสดงว่าอากาศในห้องมีการถ่ายเท-

ความร้อนให้ดิน

ปริมาณความร้อนเป็นลบ แสดงว่าอากาศได้รับความร้อนจากดิน

ตาราง 3.1 แสดงปริมาณความร้อนที่ลดหรือเพิ่มจากผลการทดลอง

วันที่ 4-5 พฤษภาคม 2537 โดยการคำนวณ

DATE	TIME	DIFFERENCE			SENSIBLE HEAT(BTU/Hr)		
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
MAY 4 1994	18:00	0.858	0.791	0.269	150.574	100.566	21.963
		0.752	0.797	0.285	131.972	101.329	23.270
		0.615	0.616	0.084	107.929	78.317	6.858
	19:00	0.573	0.595	0.094	100.558	75.647	7.675
		0.524	0.557	0.072	91.959	70.816	5.879
		0.493	0.524	0.078	86.519	66.620	6.369
		0.461	0.508	0.046	80.903	64.586	3.756
		0.461	0.510	0.114	80.903	64.840	9.308
		0.493	0.580	0.013	86.519	73.740	1.061
	20:00	0.510	0.543	-0.026	89.502	69.036	-2.123
		0.430	0.429	-0.083	75.463	54.542	-6.777
		0.367	0.447	-0.271	64.407	56.831	-22.127
		0.257	0.381	-0.198	45.102	48.439	-16.166
		0.286	0.398	-0.157	50.191	50.601	-12.819
		0.196	0.391	-0.236	34.397	49.711	-19.269
	21:00	0.057	0.315	-0.202	10.003	40.048	-16.493
		0.020	0.287	-0.281	3.510	36.488	-22.943
		-0.002	0.255	-0.404	-0.351	32.420	-32.986
-0.017		0.239	-0.469	-2.983	30.386	-38.293	
-0.020		0.224	-0.418	-3.510	28.479	-34.129	
-0.028		0.208	-0.401	-4.949	26.445	-32.741	
22:00	-0.048	0.206	-0.464	-8.424	26.190	-37.885	
	-0.032	0.111	-0.428	-5.616	14.112	-34.945	
	-0.191	0.048	-0.573	-33.519	6.103	-46.784	
	-0.127	0.113	-0.514	-22.288	14.367	-41.967	
	-0.096	0.078	-0.542	-16.847	9.917	-44.253	
	-0.143	0.096	-0.604	-25.096	12.205	-49.315	
23:00	-0.159	0.096	-0.703	-27.904	12.205	-57.399	
	-0.271	0.032	-0.812	-47.559	4.068	-66.298	
	-0.367	-0.067	-0.919	-64.407	-8.518	-75.035	
	-0.415	-0.160	-0.879	-72.830	-20.342	-71.769	
	-0.511	-0.304	-1.088	-89.678	-38.650	-88.833	
	-0.463	-0.239	-0.991	-81.254	-30.386	-80.913	
24:00	-0.574	-0.320	-1.183	-100.734	-40.684	-96.590	
	-0.672	-0.416	-1.086	-117.932	-52.889	-88.670	
	-0.799	-0.460	-0.956	-140.220	-58.483	-78.055	
	-0.831	-0.559	-1.041	-145.836	-71.070	-84.996	
	-0.895	-0.592	-1.134	-157.068	-75.265	-92.589	
	-0.912	-0.608	-1.213	-160.051	-77.300	-99.039	
01:00	-0.847	-0.624	-1.132	-148.644	-79.334	-92.426	
	-1.055	-0.799	-1.337	-185.147	-101.583	-109.163	
	-1.327	-0.784	-1.353	-232.881	-99.676	-110.470	
	-1.184	-0.913	-1.381	-207.786	-116.077	-112.756	
	-1.120	-0.960	-1.461	-196.554	-122.052	-119.288	
	-1.136	-0.961	-1.377	-199.362	-122.179	-112.429	
02:00	-1.216	-1.024	-1.506	-213.401	-130.189	-122.962	
	-1.378	-1.024	-1.421	-241.832	-130.189	-116.022	
	-1.342	-1.202	-1.598	-235.514	-152.819	-130.474	
	-1.439	-1.137	-1.572	-252.537	-144.555	-128.351	
	-1.395	-1.058	-1.538	-244.815	-134.512	-125.575	
	-1.119	-0.783	-1.417	-196.378	-99.549	-115.695	
MAY 5 1994	06:00	-0.880	-0.625	-1.344	-154.435	-79.461	-109.735

DATE	TIME	DIFFERENCE HEAD-END TUBE			SENSIBLE HEAT(BTU/Hr)		
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
MAY 5 1994	07:00	-0.608	-0.321	-0.996	-106.701	-40.811	-81.321
		-0.208	-0.063	-0.797	-36.503	-8.010	-65.073
		0.207	0.210	-0.699	36.327	26.699	-57.072
		0.639	0.447	-0.386	112.141	56.831	-31.516
	08:00	0.846	0.558	-0.431	148.468	70.943	-35.190
		1.019	0.717	-0.206	178.829	91.158	-16.819
		1.209	0.875	-0.025	212.173	111.245	-2.041
		1.272	1.050	0.330	223.229	133.494	26.944
	09:00	1.529	1.212	0.370	268.331	154.091	30.210
		1.842	1.400	0.656	323.261	177.993	53.561
		1.843	1.495	0.778	323.437	190.071	63.522
		2.016	1.479	0.743	353.797	188.037	60.664
	10:00	1.683	1.351	0.603	295.357	171.763	49.234
		1.888	1.430	0.839	331.334	181.807	68.503
		2.125	1.604	1.238	372.926	203.929	101.080
		2.092	1.778	1.305	367.135	226.051	106.551
	11:00	2.313	1.760	1.304	405.919	223.762	106.469
		1.839	1.602	1.155	322.735	203.674	94.303
		2.118	1.790	1.789	371.698	227.576	146.068
		2.564	1.966	1.476	449.968	249.953	120.512
	12:00	2.309	1.950	1.392	405.217	247.918	113.654
		2.499	1.973	1.619	438.561	250.842	132.188
		2.483	1.901	1.350	435.753	241.689	110.225
		2.624	2.137	1.748	460.498	271.693	142.721
	13:00	2.183	1.900	1.469	383.105	241.561	119.941
		2.262	1.743	1.184	396.969	221.601	96.671
		2.380	1.764	1.617	417.677	224.271	132.025
		1.932	1.569	1.173	339.056	199.479	95.773
	14:00	2.041	1.631	1.044	358.184	207.361	85.241
		2.293	1.820	1.484	402.409	231.390	121.166
		2.513	1.962	1.653	441.018	249.444	134.964
		2.285	1.923	1.493	401.005	244.486	121.900
	15:00	2.668	2.168	1.679	468.220	275.634	137.087
		2.214	1.749	1.269	388.545	222.364	103.611
		2.025	1.677	1.283	355.377	213.210	104.754
		1.876	1.631	1.159	329.228	207.361	94.630
	16:00	2.055	1.727	1.478	360.641	219.567	120.676
		2.166	1.797	1.592	380.121	228.466	129.984
		2.389	1.866	1.719	419.257	237.239	140.353
		2.048	1.734	1.569	359.413	220.457	128.106
17:00	1.761	1.507	1.272	309.046	191.596	103.856	
	1.527	1.231	0.674	267.980	156.506	55.031	
	1.065	1.008	0.579	186.902	128.155	47.274	
	0.856	0.937	0.399	150.223	119.128	32.578	
18:00	0.222	0.533	-0.279	38.960	67.764	-22.780	
	-0.428	0.081	-0.773	-75.112	10.298	-63.114	
	-0.797	-0.301	-1.433	-139.869	-38.268	-117.002	
	-0.973	-0.527	-1.535	-170.756	-67.002	-125.330	
19:00	-0.789	-0.431	-1.231	-138.465	-54.796	-100.509	
	-0.926	-0.064	-0.830	-162.508	-8.137	-67.768	
	-0.824	-0.030	-0.749	-144.608	-3.814	-61.154	
	-0.600	-0.186	-0.968	-105.297	-23.648	-79.035	
20:00	-0.701	-0.351	-1.245	-123.022	-44.625	-101.652	

วันที่ 6-7 พฤษภาคม 2537 โดยการคำนวณ

DATE	TIME	DIFFERENCE HEAD-END TUBE			SENSIBLE HEAT (BTU/Hr)		
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
MAY 6 1994	08:00	0.368	0.352	-0.526	47.735	33.564	-32.210
		0.559	0.478	-0.254	72.510	45.579	-15.554
		0.908	0.718	0.113	117.780	68.464	6.920
		0.971	0.814	0.300	125.952	77.618	18.371
	09:00	1.081	0.989	0.475	140.220	94.304	29.087
		1.178	1.068	0.553	152.802	101.837	33.864
		1.289	1.083	0.594	167.201	103.268	36.374
		1.208	1.181	0.721	156.694	112.612	44.151
	10:00	1.494	1.305	0.843	193.792	124.436	51.622
		1.585	1.463	1.029	205.596	139.502	63.012
		1.735	1.462	1.258	225.053	139.406	77.035
		1.984	1.526	1.400	257.351	145.509	85.730
	11:00	2.298	1.636	1.523	298.081	155.998	93.262
		1.837	1.551	1.306	238.284	147.893	79.974
		1.935	1.746	1.536	250.995	166.487	94.058
		2.328	1.778	1.528	301.973	169.538	93.569
	12:00	2.423	1.966	1.780	314.296	187.464	109.000
		2.150	1.886	1.840	278.884	179.836	112.674
		2.171	1.950	1.676	281.608	185.939	102.632
		2.534	1.997	1.820	328.694	190.420	111.450
	13:00	2.027	1.823	1.547	262.929	173.829	94.732
		2.279	1.935	1.476	295.617	184.508	90.384
		2.357	2.043	1.783	305.734	194.807	109.184
		2.405	2.076	1.773	311.961	197.953	108.571
	14:00	2.523	1.964	1.597	327.267	187.274	97.794
		2.498	2.277	2.036	324.024	217.119	124.676
		2.419	2.058	1.778	313.777	196.237	108.878
		2.264	1.766	1.266	293.671	168.394	77.647
	15:00	2.294	1.978	1.114	297.563	188.609	68.217
		2.679	2.065	1.955	347.502	196.904	119.716
		2.826	2.246	2.212	366.570	214.163	135.454
		2.608	2.151	2.237	338.293	205.105	136.985
	16:00	2.629	2.120	2.266	341.017	202.149	138.761
		2.266	1.884	2.020	293.931	179.645	123.697
		2.278	1.835	1.880	295.487	174.973	115.124
		1.805	1.576	1.668	234.133	150.277	102.142
	17:00	1.553	1.418	1.567	201.445	135.211	95.957
		1.284	1.317	1.422	166.552	125.580	87.078
		1.270	1.176	1.153	164.736	112.135	70.605
		1.158	1.064	0.933	150.208	101.456	57.133
	18:00	0.904	0.955	0.724	117.261	91.062	44.335
		0.762	0.778	0.514	98.842	74.185	31.475
		0.602	0.716	0.396	78.087	68.273	24.249
		0.526	0.652	0.268	68.229	62.170	16.411
	19:00	0.395	0.542	0.167	51.237	51.681	10.226
		0.270	0.517	0.082	35.023	49.298	5.021
		0.277	0.440	0.069	35.931	41.955	4.225
		0.191	0.446	0.050	24.775	42.528	3.062
20:00	0.032	0.352	-0.122	4.151	33.564	-7.471	
	-0.076	0.261	-0.318	-9.858	24.887	-19.473	
	-0.287	0.110	-0.491	-37.228	10.489	-30.067	
	-0.366	0.064	-0.588	-47.475	6.103	-36.007	

DATE	TIME	DIFFERENCE HEAD-END TUBE			SENSIBLE HEAT (BTU/Hr)		
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
MAY 7 1994	21:00	-0.191	0.192	-0.496	-24.775	18.308	-30.373
		-0.155	0.159	-0.440	-20.106	15.161	-26.944
		-0.366	0.116	-0.556	-47.475	11.061	-34.047
		-0.510	0.172	-0.751	-66.154	16.401	-45.988
	22:00	-0.575	0.248	-0.941	-74.585	23.648	-57.623
		-0.573	0.140	-0.877	-74.326	13.349	-53.704
		-0.303	0.021	-0.623	-39.303	2.002	-38.150
		-0.139	0.180	-0.494	-18.030	17.164	-30.251
	23:00	-0.207	0.145	-0.652	-26.851	13.826	-39.926
		-0.288	0.032	-0.781	-37.357	3.051	-47.825
		-0.270	0.033	-0.845	-35.023	3.147	-51.744
		-0.430	-0.128	-0.951	-55.777	-12.205	-58.235
MAY 7 1994	24:00	-0.526	-0.160	-1.268	-68.229	-15.257	-77.647
		-0.642	-0.275	-1.514	-83.276	-26.222	-92.711
		-0.638	-0.304	-1.423	-82.757	-28.987	-87.139
		-0.751	-0.364	-1.280	-97.415	-34.709	-78.382
	01:00	-0.765	-0.442	-1.231	-99.231	-42.146	-75.382
		-0.826	-0.494	-1.193	-107.143	-47.104	-73.055
		-0.943	-0.608	-1.288	-122.320	-57.975	-78.872
		-0.846	-0.656	-1.252	-109.738	-62.552	-75.667
	02:00	-0.816	-0.622	-1.285	-105.846	-59.310	-78.688
		-0.911	-0.654	-1.301	-118.169	-62.361	-79.668
		-1.039	-0.736	-1.447	-134.772	-70.180	-88.608
		-0.943	-0.722	-1.497	-122.320	-68.845	-81.670
03:00	-0.894	-0.656	-1.430	-115.964	-62.552	-87.567	
	-1.136	-0.768	-1.417	-147.354	-73.231	-86.771	
	-0.960	-0.736	-1.326	-124.525	-70.180	-81.199	
	-0.993	-0.720	-1.311	-128.805	-68.654	-80.280	
04:00	-1.039	-0.736	-1.294	-134.772	-70.180	-79.239	
	-1.072	-0.758	-1.247	-139.053	-73.231	-76.361	
	-1.040	-0.880	-1.357	-134.902	-83.911	-83.097	
	-1.089	-0.848	-1.255	-141.258	-80.860	-76.351	
05:00	-1.216	-0.913	-1.275	-157.731	-87.057	-78.076	
	-1.296	-0.963	-1.415	-168.109	-91.825	-86.649	
	-1.328	-1.024	-1.396	-172.259	-97.642	-85.485	
	-1.488	-1.105	-1.245	-193.014	-105.365	-76.239	
MAY 7 1994	06:00	-1.554	-1.218	-1.321	-201.575	-116.140	-80.893
		-1.457	-1.138	-1.223	-188.992	-108.512	-74.892
		-1.424	-1.057	-1.212	-184.712	-100.788	-74.218
		-1.120	-0.833	-1.039	-145.279	-79.429	-63.624
	07:00	-0.913	-0.655	-1.149	-118.428	-62.456	-70.360
		-0.672	-0.431	-0.878	-87.167	-41.097	-53.765
		-0.384	-0.144	-0.712	-49.810	-13.731	-43.600
		-0.096	0.079	-0.771	-12.452	7.533	-47.213
	08:00	0.000	0.175	-0.718	0.000	16.687	-43.967
		0.462	0.416	-0.399	59.928	39.667	-24.433
		0.479	0.479	-0.309	62.133	45.674	-18.934
		0.828	0.718	-0.271	107.403	68.464	-16.595
09:00	1.051	0.941	0.016	136.329	89.727	0.980	
	1.128	0.892	0.255	146.317	85.055	15.615	
	1.112	0.938	0.490	144.241	89.441	30.006	
	1.272	1.066	0.475	164.995	101.647	29.087	
10:00	1.368	1.099	0.565	177.448	104.793	34.598	
	1.732	1.335	0.898	224.664	127.297	54.990	

DATE	TIME	DIFFERENCE HEAD-END TUBE			SENSIBLE HEAT (BTU/Hr)		
		12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
		1.637	1.417	0.994	212.341	135.115	60.869
		1.969	1.573	1.165	255.406	149.991	71.340
	11:00	2.091	1.668	1.317	271.231	159.049	80.648
		2.046	1.620	0.934	265.394	154.472	57.194
		2.188	1.778	1.113	283.813	169.538	68.156
7 1994		2.330	1.818	1.002	302.232	173.352	61.358
MAY	12:00	2.076	1.793	1.241	269.285	170.968	75.994

ตาราง 4 แสดงการปรับเทียบอุณหภูมิที่ลดลงจากการทดลองเก็บอุณหภูมิทำนายน

HEAD END TUBE = อุณหภูมิที่ลดลงของท่อข้อย

COOL DOWN PREDICT = อุณหภูมิที่ลดลงจากการทำนายด้วยสมการ

$$HE = -1.873 + 0.295(OS) + 0.019(A) + 0.002(V)$$

โดย OS = ความแตกต่างระหว่างอุณหภูมิอากาศกับอุณหภูมิดิน

(องศาเซนติเกรด)

A = พื้นที่ผิวท่อที่อากาศสัมผัส (ตารางฟุต)

V = ความเร็วลมในท่อ (ฟุตต่อนาที)

HE = อุณหภูมิที่ลดลง (องศาเซนติเกรด)

ตาราง 4.1 แสดงการเปรียบเทียบอุณหภูมิอากาศที่ลดลงจากผลการทดลองกับ

อุณหภูมิทำนาย วันที่ 4-5 พฤษภาคม 2537

DATE	TIME	OS	DIFFERENC HEAD-END TUBE			COOL DOWN PREDICT (C)		
			12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
MAY 4 1994	18:00	2.464	0.858	0.791	0.269	0.664	0.411	0.148
		2.165	0.752	0.797	0.285	0.575	0.322	0.059
		1.858	0.615	0.616	0.084	0.485	0.231	-0.032
	19:00	1.682	0.573	0.595	0.094	0.433	0.179	-0.084
		1.634	0.524	0.557	0.072	0.418	0.165	-0.098
		1.507	0.493	0.524	0.078	0.381	0.128	-0.135
		1.428	0.461	0.508	0.046	0.357	0.104	-0.159
		1.428	0.461	0.510	0.114	0.357	0.104	-0.159
		1.498	0.493	0.580	0.013	0.378	0.125	-0.138
	20:00	1.458	0.510	0.543	-0.026	0.366	0.113	-0.150
		1.237	0.430	0.429	-0.083	0.301	0.048	-0.215
		1.141	0.367	0.447	-0.271	0.273	0.019	-0.244
		1.077	0.257	0.381	-0.198	0.254	0.001	-0.262
		1.013	0.286	0.398	-0.157	0.235	-0.018	-0.281
		0.827	0.196	0.391	-0.236	0.180	-0.073	-0.336
	21:00	0.889	0.057	0.315	-0.202	0.198	-0.055	-0.318
		0.648	0.020	0.287	-0.281	0.127	-0.126	-0.389
		0.585	-0.002	0.255	-0.404	0.108	-0.145	-0.408
		0.584	-0.017	0.239	-0.469	0.108	-0.145	-0.408
		0.541	-0.020	0.224	-0.418	0.095	-0.158	-0.421
		0.488	-0.028	0.208	-0.401	0.080	-0.174	-0.437
	22:00	0.396	-0.048	0.206	-0.464	0.052	-0.201	-0.464
		0.170	-0.032	0.111	-0.428	-0.014	-0.268	-0.531
		0.010	-0.191	0.048	-0.573	-0.062	-0.315	-0.578
		0.106	-0.127	0.113	-0.514	-0.033	-0.286	-0.549
		-0.005	-0.096	0.078	-0.542	-0.066	-0.319	-0.582
		0.010	-0.143	0.096	-0.604	-0.062	-0.315	-0.578
	23:00	-0.133	-0.159	0.096	-0.703	-0.104	-0.357	-0.620
		-0.437	-0.271	0.032	-0.812	-0.194	-0.447	-0.710
		-0.756	-0.367	-0.067	-0.919	-0.288	-0.541	-0.804
		-0.930	-0.415	-0.160	-0.879	-0.340	-0.593	-0.856
		-1.364	-0.511	-0.304	-1.088	-0.468	-0.721	-0.984
		-1.189	-0.463	-0.239	-0.991	-0.416	-0.669	-0.932
	01:00	-1.332	-0.574	-0.320	-1.183	-0.458	-0.712	-0.975
		-1.926	-0.672	-0.416	-1.086	-0.634	-0.887	-1.150
		-1.702	-0.799	-0.460	-0.956	-0.568	-0.821	-1.084
-1.926		-0.831	-0.559	-1.041	-0.634	-0.887	-1.150	
-2.102		-0.895	-0.592	-1.134	-0.686	-0.939	-1.202	
-2.246		-0.912	-0.608	-1.213	-0.729	-0.982	-1.245	
02:00	-2.232	-0.847	-0.624	-1.132	-0.724	-0.978	-1.241	
	-2.762	-1.055	-0.799	-1.337	-0.881	-1.134	-1.397	
	-2.664	-1.327	-0.784	-1.353	-0.852	-1.105	-1.368	
	-3.033	-1.184	-0.913	-1.381	-0.961	-1.214	-1.477	
	-3.228	-1.120	-0.960	-1.461	-1.019	-1.272	-1.535	
	-3.291	-1.136	-0.961	-1.377	-1.037	-1.291	-1.554	
03:00	-3.437	-1.216	-1.024	-1.506	-1.081	-1.334	-1.597	
	-3.548	-1.378	-1.024	-1.421	-1.113	-1.367	-1.630	
	-3.725	-1.342	-1.202	-1.598	-1.166	-1.419	-1.682	
	-3.533	-1.439	-1.137	-1.572	-1.109	-1.362	-1.625	
	-3.196	-1.395	-1.058	-1.538	-1.009	-1.263	-1.526	
	-1.991	-1.119	-0.783	-1.417	-0.653	-0.906	-1.169	
MAY 4 1994	06:00	-1.511	-0.880	-0.625	-1.344	-0.511	-0.764	-1.027

DATE	TIME	OS	DIFFERENC HEAD-END TUBE			COOL DOWN PREDICT (C)		
			12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
	07:00	-0.631	-0.608	-0.321	-0.996	-0.251	-0.504	-0.767
		2.303	-0.208	-0.063	-0.797	0.616	0.363	0.100
		1.268	0.207	0.210	-0.699	0.310	0.057	-0.206
		2.240	0.639	0.447	-0.386	0.597	0.344	0.081
	08:00	2.572	0.846	0.558	-0.431	0.696	0.442	0.180
		3.237	1.019	0.717	-0.206	0.892	0.639	0.376
		3.923	1.209	0.875	-0.025	1.095	0.842	0.579
		4.316	1.272	1.050	0.330	1.211	0.958	0.695
	09:00	4.709	1.529	1.212	0.370	1.327	1.074	0.811
		5.615	1.842	1.400	0.656	1.595	1.342	1.079
		5.516	1.843	1.495	0.778	1.566	1.313	1.050
		6.588	2.016	1.479	0.743	1.883	1.630	1.367
	10:00	5.153	1.683	1.351	0.603	1.459	1.205	0.942
		6.734	1.888	1.430	0.839	1.926	1.673	1.410
		7.072	2.125	1.604	1.238	2.026	1.773	1.510
		7.419	2.092	1.778	1.305	2.128	1.875	1.612
	11:00	7.631	2.313	1.760	1.304	2.191	1.938	1.675
		7.040	1.839	1.602	1.155	2.016	1.763	1.500
		7.935	2.118	1.790	1.789	2.281	2.028	1.765
		8.391	2.564	1.966	1.476	2.416	2.163	1.900
MAY	12:00	9.038	2.309	1.950	1.392	2.607	2.354	2.091
4 1994		8.794	2.499	1.973	1.619	2.535	2.282	2.019
		8.655	2.483	1.901	1.350	2.494	2.241	1.978
		8.832	2.624	2.137	1.748	2.546	2.293	2.030
	13:00	8.439	2.183	1.900	1.469	2.430	2.177	1.914
		7.551	2.262	1.743	1.184	2.167	1.914	1.651
		8.011	2.380	1.764	1.617	2.303	2.050	1.787
		6.329	1.932	1.569	1.173	1.806	1.553	1.290
	14:00	6.851	2.041	1.631	1.044	1.960	1.707	1.444
		7.573	2.293	1.820	1.484	2.174	1.921	1.658
		8.233	2.513	1.962	1.653	2.369	2.116	1.853
		7.750	2.285	1.923	1.493	2.226	1.973	1.710
	15:00	8.793	2.668	2.168	1.679	2.535	2.281	2.018
		8.119	2.214	1.749	1.269	2.335	2.082	1.819
		6.578	2.025	1.677	1.283	1.880	1.627	1.364
		6.157	1.876	1.631	1.159	1.755	1.502	1.239
	16:00	6.855	2.055	1.727	1.478	1.962	1.709	1.446
		7.224	2.166	1.797	1.592	2.071	1.818	1.555
		7.065	2.389	1.866	1.719	2.024	1.771	1.508
		6.040	2.048	1.734	1.569	1.721	1.468	1.205
	17:00	5.020	1.761	1.507	1.272	1.419	1.166	0.903
		4.274	1.527	1.231	0.674	1.199	0.946	0.683
		3.386	1.065	1.008	0.579	0.936	0.683	0.420
		2.809	0.856	0.937	0.399	0.766	0.513	0.250
MAY	18:00	1.350	0.222	0.533	-0.279	0.334	0.081	-0.182
4 1994		-0.213	-0.428	0.081	-0.773	-0.128	-0.381	-0.644
		-1.440	-0.797	-0.301	-1.433	-0.490	-0.743	-1.006
		-1.840	-0.973	-0.527	-1.535	-0.609	-0.862	-1.125
	19:00	-1.193	-0.789	-0.431	-1.231	-0.417	-0.670	-0.933
		-0.406	-0.926	-0.064	-0.830	-0.185	-0.438	-0.701
		-0.484	-0.824	-0.030	-0.749	-0.208	-0.461	-0.724
		-0.845	-0.600	-0.186	-0.968	-0.314	-0.568	-0.831
	20:00	-1.268	-0.701	-0.351	-1.245	-0.439	-0.693	-0.956

อุณหภูมิทำนาย วันที่ 6-7 พฤษภาคม 2537

DATE	TIME	OS	DIFFERENCE HEAD-END TUBE			COOL DOWN PREDICT (C)		
			12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
MAY 6 1994	08:00	1.873	0.368	0.352	-0.526	0.429	0.176	-0.087
		2.477	0.559	0.478	-0.254	0.608	0.354	0.091
		2.934	0.908	0.718	0.113	0.743	0.489	0.227
		3.898	0.971	0.814	0.300	1.028	0.774	0.511
	09:00	3.943	1.081	0.989	0.475	1.041	0.788	0.525
		4.510	1.178	1.068	0.553	1.208	0.955	0.692
		4.437	1.289	1.083	0.594	1.187	0.934	0.671
		5.277	1.208	1.181	0.721	1.435	1.182	0.919
	10:00	5.209	1.494	1.305	0.843	1.415	1.162	0.899
		5.182	1.585	1.463	1.029	1.407	1.154	0.891
		5.374	1.735	1.462	1.258	1.464	1.211	0.948
		6.173	1.984	1.526	1.400	1.700	1.447	1.184
	11:00	7.544	2.298	1.636	1.523	2.105	1.852	1.589
		7.260	1.837	1.551	1.306	2.021	1.768	1.505
		6.496	1.935	1.746	1.536	1.796	1.542	1.279
		7.223	2.328	1.778	1.528	2.010	1.757	1.494
	12:00	7.620	2.423	1.966	1.780	2.128	1.875	1.612
		7.465	2.150	1.886	1.840	2.082	1.829	1.566
		7.328	2.171	1.950	1.676	2.041	1.788	1.525
		7.779	2.534	1.997	1.820	2.175	1.922	1.659
	13:00	7.076	2.027	1.823	1.547	1.967	1.714	1.451
		7.938	2.279	1.935	1.476	2.222	1.969	1.706
		8.119	2.357	2.043	1.783	2.275	2.022	1.759
		8.207	2.405	2.076	1.773	2.301	2.048	1.785
	14:00	8.425	2.523	1.964	1.597	2.366	2.113	1.850
		8.436	2.498	2.277	2.056	2.369	2.116	1.853
		8.187	2.419	2.058	1.778	2.295	2.042	1.779
		7.284	2.264	1.766	1.268	2.028	1.775	1.512
	15:00	7.872	2.294	1.978	1.114	2.202	1.949	1.686
		8.407	2.679	2.065	1.955	2.360	2.107	1.844
		8.700	2.826	2.246	2.212	2.447	2.194	1.931
		8.202	2.608	2.151	2.237	2.300	2.047	1.784
	16:00	8.468	2.629	2.120	2.266	2.378	2.125	1.862
		7.179	2.266	1.884	2.020	1.997	1.744	1.481
		7.038	2.278	1.835	1.880	1.956	1.703	1.440
		5.890	1.805	1.576	1.668	1.616	1.363	1.100
17:00	5.140	1.553	1.418	1.567	1.395	1.142	0.879	
	4.510	1.284	1.317	1.422	1.208	0.955	0.692	
	3.926	1.270	1.176	1.153	1.036	0.783	0.520	
	3.457	1.158	1.064	0.933	0.897	0.644	0.381	
18:00	3.079	0.904	0.955	0.724	0.785	0.532	0.269	
	2.714	0.762	0.778	0.514	0.678	0.424	0.161	
	2.286	0.602	0.716	0.396	0.551	0.298	0.035	
	2.030	0.526	0.652	0.268	0.475	0.222	-0.041	
19:00	1.841	0.395	0.542	0.167	0.420	0.166	-0.097	
	1.604	0.270	0.517	0.082	0.349	0.096	-0.167	
	1.604	0.277	0.440	0.069	0.349	0.096	-0.167	
	1.412	0.191	0.446	0.050	0.293	0.040	-0.223	
20:00	1.028	0.032	0.352	-0.122	0.179	-0.074	-0.337	
	0.631	-0.076	0.261	-0.318	0.062	-0.191	-0.454	
	0.329	-0.287	0.110	-0.491	-0.027	-0.281	-0.544	
	0.121	-0.366	0.064	-0.588	-0.089	-0.342	-0.605	

DATE	TIME	OS	DIFFERENCE HEAD-END TUBE			COOL DOWN PREDICT (C)		
			12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
MAY 7 1994	21:00	0.599	-0.191	0.192	-0.496	0.052	-0.201	-0.464
		0.423	-0.155	0.159	-0.440	0.000	-0.253	-0.516
		0.121	-0.366	0.116	-0.556	-0.089	-0.342	-0.605
	22:00	-0.454	-0.510	0.172	-0.751	-0.259	-0.512	-0.775
		-0.855	-0.575	0.248	-0.941	-0.377	-0.631	-0.894
		-0.534	-0.573	0.140	-0.877	-0.283	-0.536	-0.799
	23:00	0.039	-0.303	0.021	-0.623	-0.113	-0.366	-0.629
		0.551	-0.139	0.180	-0.494	0.038	-0.215	-0.478
		0.296	-0.207	0.145	-0.652	-0.037	-0.290	-0.553
	24:00	0.217	-0.288	0.032	-0.781	-0.061	-0.314	-0.577
		0.155	-0.270	0.033	-0.845	-0.079	-0.332	-0.595
		-0.200	-0.430	-0.128	-0.951	-0.184	-0.437	-0.700
	01:00	-0.537	-0.526	-0.160	-1.268	-0.283	-0.537	-0.800
		-0.596	-0.642	-0.275	-1.514	-0.301	-0.554	-0.817
		-0.889	-0.638	-0.304	-1.423	-0.387	-0.641	-0.904
	02:00	-1.063	-0.751	-0.364	-1.280	-0.439	-0.692	-0.955
		-1.255	-0.765	-0.442	-1.231	-0.496	-0.749	-1.012
		-1.400	-0.826	-0.494	-1.193	-0.539	-0.792	-1.055
	03:00	-1.417	-0.943	-0.608	-1.288	-0.544	-0.797	-1.060
		-1.641	-0.846	-0.656	-1.252	-0.610	-0.863	-1.126
		-1.576	-0.816	-0.622	-1.285	-0.591	-0.844	-1.107
	04:00	-1.674	-0.911	-0.654	-1.301	-0.620	-0.873	-1.136
		-1.722	-1.039	-0.736	-1.447	-0.634	-0.887	-1.150
		-1.692	-0.943	-0.722	-1.497	-0.625	-0.878	-1.141
	05:00	-1.771	-0.894	-0.656	-1.430	-0.648	-0.901	-1.164
		-1.836	-1.136	-0.768	-1.417	-0.667	-0.921	-1.184
		-1.898	-0.960	-0.736	-1.326	-0.686	-0.939	-1.202
	06:00	-1.867	-0.993	-0.720	-1.311	-0.677	-0.930	-1.193
		-1.786	-1.039	-0.736	-1.294	-0.653	-0.906	-1.169
		-1.932	-1.072	-0.768	-1.247	-0.696	-0.949	-1.212
	07:00	-2.078	-1.040	-0.880	-1.357	-0.739	-0.992	-1.255
		-2.270	-1.089	-0.848	-1.255	-0.796	-1.049	-1.312
		-2.399	-1.216	-0.913	-1.275	-0.834	-1.087	-1.350
	08:00	-2.557	-1.296	-0.963	-1.415	-0.881	-1.134	-1.397
		-2.656	-1.328	-1.024	-1.396	-0.910	-1.163	-1.426
		-2.897	-1.488	-1.105	-1.245	-0.981	-1.234	-1.497
09:00	-3.074	-1.554	-1.218	-1.321	-1.033	-1.286	-1.549	
	-2.833	-1.457	-1.138	-1.223	-0.962	-1.215	-1.478	
	-2.463	-1.424	-1.057	-1.212	-0.853	-1.106	-1.369	
10:00	-1.836	-1.120	-0.833	-1.039	-0.667	-0.921	-1.184	
	-1.227	-0.913	-0.655	-1.149	-0.487	-0.741	-1.003	
	-0.298	-0.672	-0.431	-0.878	-0.213	-0.466	-0.729	
11:00	0.325	-0.384	-0.144	-0.712	-0.029	-0.282	-0.545	
	0.868	-0.096	0.079	-0.771	0.132	-0.121	-0.384	
	1.490	0.000	0.175	-0.718	0.316	0.063	-0.200	
12:00	1.968	0.462	0.416	-0.399	0.457	0.204	-0.059	
	2.637	0.479	0.479	-0.309	0.655	0.402	0.139	
	2.738	0.828	0.718	-0.271	0.685	0.432	0.169	
13:00	3.692	1.051	0.941	0.016	0.967	0.714	0.451	
	3.856	1.128	0.892	0.255	1.015	0.762	0.499	
	4.213	1.112	0.938	0.490	1.121	0.868	0.605	
14:00	4.547	1.272	1.066	0.475	1.219	0.966	0.703	
	5.427	1.368	1.099	0.565	1.480	1.226	0.963	
	6.183	1.732	1.335	0.898	1.703	1.450	1.187	

DATE	TIME	OS	DIFFERENCE HEAD-END TUBE			COOL DOWN PREDICT (C)		
			12in.DI.	10in.DI.	8in.DI.	12in.DI.	10in.DI.	8in.DI.
		5.376	1.637	1.417	0.994	1.464	1.211	0.948
		6.377	1.969	1.573	1.165	1.760	1.507	1.244
	11:00	6.640	2.091	1.668	1.317	1.838	1.585	1.322
		6.410	2.046	1.620	0.934	1.770	1.517	1.254
		6.884	2.188	1.778	1.113	1.910	1.657	1.394
7 1994		7.092	2.330	1.818	1.002	1.972	1.719	1.456
MAY	12:00	7.851	2.076	1.793	1.241	2.196	1.943	1.680

ภาคผนวก ค.

ขั้นตอนขบวนการ

REGRESSION

MORE

* * * * MULTIPLE REGRESSION * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. HE COOL DOWN

Beginning Block Number 1. Method: Forward

MORE

* * * * MULTIPLE REGRESSION * * * *

Equation Number 1 Dependent Variable.. HE COOL DOWN

Variable(s) Entered on Step Number

1.. OS DIFFERENCE OA AND SOIL TEMP

Multiple R .95393
 R Square .90999
 Adjusted R Square .90985
 Standard Error .35010

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	806.68962	806.68962
Residual	651	79.79330	.12257

F = 6581.44137 Signif F = .0000

MORE

***** MULTIPLE REGRESSION *****

Equation Number 1 Dependent Variable.. HE COOL DOWN

----- Variables in the Equation -----

Variable	B	SE B	Beta	T	Sig T
OS	.29521	3.63886E-03	.95393	81.126	.0000
(Constant)	-.32698	.01637		-19.972	.0000

----- Variables not in the Equation -----

Variable	Beta In	Partial	Min Toler	T	Sig T
A	.18463	.61538	1.00000	19.904	.0000
V	7.5982E-04	.00253	.99637	.064	.9486

MORE

***** MULTIPLE REGRESSION *****

Equation Number 1 Dependent Variable.. HE COOL DOWN

Variable(s) Entered on Step Number
2.. A AREA

Multiple R	.97164
R Square	.94408
Adjusted R Square	.94390
Standard Error	.27617

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	836.90698	418.45349
Residual	650	49.57594	.07627

F = 5486.42640 Signif F = .0000

MORE

* * * * MULTIPLE REGRESSION * * * *

Equation Number 1 Dependent Variable.. HE COOL DOWN

----- Variables in the Equation -----

Variable	B	SE B	Beta	T	Sig T
OS	.29518	2.87046E-03	.95384	102.833	.0000
A	.01904	9.56440E-04	.18463	19.904	.0000
(Constant)	-1.64434	.06743		-24.385	.0000

----- Variables not in the Equation -----

Variable	Beta In	Partial	Min Toler	T	Sig T
V	.02578	.10786	.97879	2.764	.0059

MORE

* * * * MULTIPLE REGRESSION * * * *

Equation Number 1 Dependent Variable.. HE COOL DOWN

Variable(s) Entered on Step Number
3.. V SPEED

Multiple R	.97197
R Square	.94473
Adjusted R Square	.94447
Standard Error	.27477

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	837.48378	279.16126
Residual	649	48.99914	.07550

F = 3697.52731 Signif F = .0000

MORE

* * * * MULTIPLE REGRESSION * * * *

Equation Number 1 Dependent Variable.. HE COOL DOWN

----- Variables in the Equation -----

Variable	B	SE B	Beta	T	Sig T
OS	.29566	2.86118E-03	.95539	103.334	.0000
A	.01939	9.60100E-04	.18804	20.196	.0000
V	1.980317E-03	7.16461E-04	.02578	2.764	.0059
(Constant)	-1.87351	.10666		-17.566	.0000

End Block Number 1 All requested variables entered.

MORE

* * * * MULTIPLE REGRESSION * * * *

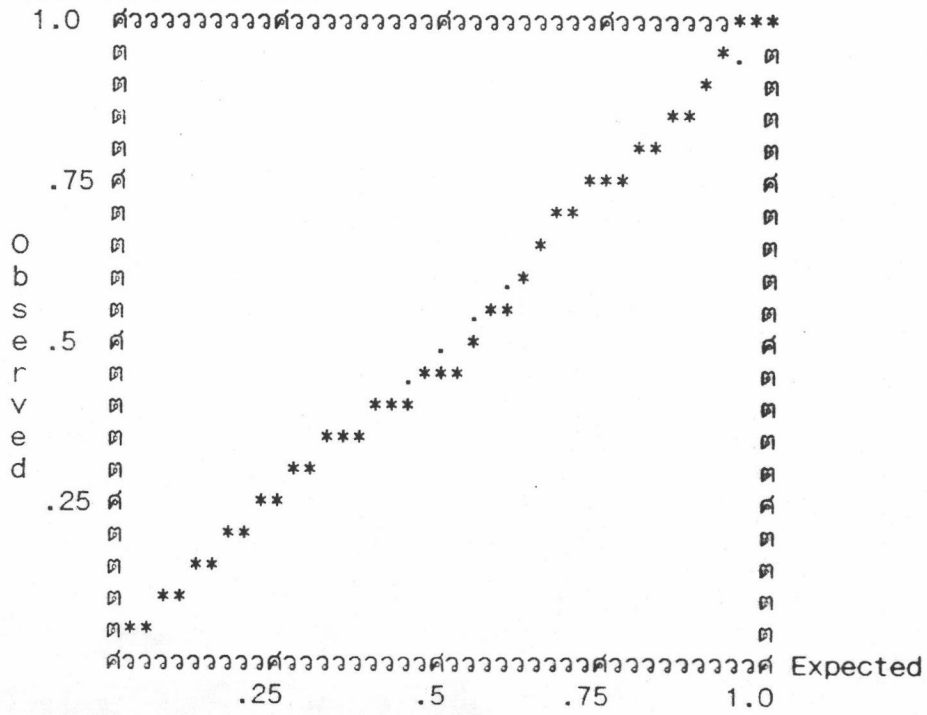
Equation Number 1 Dependent Variable.. HE COOL DOWN

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	-1.6634	2.6371	.4002	1.1334	653
*ZPRED	-1.8208	1.9737	-.0000	1.0000	653
*SEPPRED	.0141	.0279	.0213	.0031	653
*ADJPPRED	-1.6640	2.6405	.4004	1.1333	653
*RESID	-.9158	.8538	.0000	.2741	653
*ZRESID	-3.3330	3.1075	.0000	.9977	653
*SRESID	-3.3419	3.1137	-.0004	1.0007	653
*DRESID	-.9207	.8573	-.0002	.2758	653
*SDRESID	-3.3684	3.1348	-.0006	1.0021	653
*MAHAL	.7244	5.7222	2.9954	1.1078	653
*COOK D	.0000	.0180	.0015	.0022	653
*LEVER	.0011	.0088	.0046	.0017	653

Total Cases = 661

Normal Probability (P-P) Plot
Studentized Residual





ประวัติผู้เขียน

นายสุพจน์ ดวงสินทวีกุล เกิดวันที่ 20 กรกฎาคม 2508 ที่กรุงเทพมหานคร
สำเร็จการศึกษาปริญญาตรีสถาปัตยกรรมศาสตรบัณฑิต เกียรตินิยมอันดับสอง สาขา
สถาปัตยกรรม คณะสถาปัตยกรรมศาสตร์ สถาบันเทคโนโลยี พระจอมเกล้าเจ้าคุณ
ทหารลาดกระบัง ในปีการศึกษา 2532 และเข้าศึกษาต่อในหลักสูตรสถาปัตยกรรม
ศาสตรมหาบัณฑิต ที่จุฬาลงกรณ์มหาวิทยาลัย เมื่อปี พ.ศ. 2535 ปัจจุบันทำงานอยู่ที่
บริษัท ยูนิเวสท์ แลนด์ จำกัด (มหาชน)