

N.C. DEPT. OF
ENVIRONMENTAL QUALITY
& NATURAL RESOURCES

SEP 13 1997

DIVISION OF ENVIRONMENTAL SCIENCE
MOORESVILLE TECHNICAL OFFICE

SEPTEMBER 12th, 1997

**EXCAVATION & LANDFARM ACTIVITIES SUBSEQUENT
TO AN UST (UNDERGROUND STORAGE TANK) CLOSURE**

SITE:

**KING BROS., INC./OLD SEALTEST DAIRY
US HWY 70 EAST
HICKORY, NORTH CAROLINA 28601**

PREPARED FOR:

**MR BUCK KING
P.O. BOX 733
LENOIR, NORTH CAROLINA 28603-0733
704/328-3676**

PROJECT MANAGEMENT:

**SALEM ENVIRONMENTAL
P.O. BOX 5535
WINSTON-SALEM, N.C. 27113-5535
800/862-9231 910/759-9700
FAX 910/759-9704**


**HARVEY C. DANNER, JR.
PROJECT MANAGER**

CONSULTING GEOLOGIST:

**ANDREW M. RARING, PhD, PG
P.O. BOX 34
BETHANIA, N.C. 27010
910/759-9703**

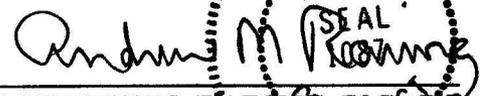

**ANDREW M. RARING, PhD, PG
CONSULTING GEOLOGIST**



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SITE SENSITIVITY EVALUATION (SSE)

1.0 PROJECT SUMMARY

Releases were confirmed at this site subsequent to closure of four USTs. Excavation on two separate occasions, subsequent to drilling work to determine SSE (Site Sensitivity Evaluation) scoring, has removed the vast majority of contaminated soil at both release zones. Soil samples collected from each pit were below quantifiable levels.

A landfarm certificate was issued by the Mooresville Regional Office (MRO) of the N.C. Division of Water Quality (DWQ) for disposal of the impacted dirt. This soil has been applied as required under the conditions of the certificate.

2.0 FIELD OPERATIONS

Two excavation events have taken place at this site - on 7/24 at the former location of UST #4 and on 9/3 where the gasoline pump was set. Subcontractor was Max's Digging Service of Conover, which land applied the soil on Mr King's property. Guidance was supplied throughout by the consulting geologist.

At UST #4 the soil was excavated horizontally until fuel odor ceased. Soil was screened for volatiles with a Gastech Model 1238 Organic Vapor Analyzer (OVA). The process involves placing soil into a ziplock type bag (about 1/4 to 1/3rd its volume), sealing the bag and allowing 10 to 15 minutes for the soil gasses to equilibrate. Then, the probe from the OVA is inserted into the bag. The subsequent reading, expressed in parts per million of total organics, can suggest if hydrocarbon contamination is present, especially when coupled with a petroleum odor of any kind. Here, the total organics count fell below 15 ppm (parts per million) at 13.5-14 feet. The pit was expanded laterally in all four directions to a rough depth of 14-15', where excavation halted. Disposable latex gloves were worn during sample collection from the trackhoe's bucket to prevent cross-contamination. Soil was packed tightly into the glass jars supplied by the lab, which had teflon seal, screw caps. Care was taken to avoid disturbing the soil excessively. Temperature was maintained under 40 degrees by ice chest with ice slurry and refrigeration in an ice slurry throughout our hold time. Shipment to the lab was per FedEx next day air in a lab supplied cooler.

Soil exhibited similar characteristics as was noted during our drilling operations. Backfill was present to 5-6', where a brownish-gold silt was intercepted. White streaking was evident to a depth of 13', but the soil had altered to a deeper brown silt by the 12' depth. This layer continued until the extent of the excavation. Two full trucks of contaminated soil (25 cubic yards) were excavated and carried to the landfarm, where they were applied. The existing 15 cu. yd. stockpile could not be accessed due to extremely wet conditions and was not applied at that time.

The second excavation at the gasoline pump found impacted soil below the 10' depth,

which was the extent of our earlier digging. The pit was expanded to around 17', where the OVA count fell under 20 ppm. The pit was expanded laterally until odor ceased and OVA readings fell to <10-15 ppm. A soil sample was collected at the bottom of the pit at 17'. Sampling protocol and handling was the same as above. Lithology was the same as in our closure report (see Appendix).

Here, less than a tandem load (probably 7-9 cu. yds.) was carried to landfarm along with the original stockpile. Total amount of soil applied was 45-50 cu. yds.

3.0 LABORATORY RESULTS

Specialized Assays of Nashville, Tenn., (NC License #387) performed the analytical services. EPA 5030-8015 Modified, Purge & Trap Method was employed at both, while the samples at UST #4 were also analyzed per EPA 3550 Sonication Process. These are required under guidance issued by the DWQ. Field ID's are cross referenced with the lab ID's on the results, which are enclosed. The chain of sample custody is also furnished. The following table shows all relevant sampling activity associated with these releases, all expressed in parts per million (ppm = mg/kg), total petroleum hydrocarbons (TPH):

SAMPLE ID#	EPA 5030-8015	EPA 3550
P-10	1858	n/a
P-17 (new)	<4	n/a
P-20	94	n/a
P-25	<10	n/a
P-30	<10	n/a
P-35	<10	n/a
P-40	79	n/a
4A-7	1373	2348
4W-15 (new)	<4	<4
4E-15 (new)	<4	<4
4S-14 (new)	<4	<4
4N-14 (new)	<4	<4

4.0 GEOLOGIST'S ASSESSMENT

Four underground storage tanks installed at three locations at this site have been removed. The pump at USTs 1 & 2 had impacted soil beneath. This area was recently re-excavated and sample P-17' was taken. No TPH was detected. A gasoline tank (UST#4) at another location also had released product. The impacted soil has been totally excavated in two stages of digging. The removed, impacted soil has been land applied under approval of the DWQ. Soil testing at the bottom of the final hole found no impact (the four most recent samples are highlighted in the table, above).

It appears that the closure activity at this site is successfully completed. No further work appears to be necessary.

5.0 WARRANTY & LIMITATIONS

It is attested that work was carried out with full respect to regulatory guidance and, where such guidance was not applicable, standard industry procedures. The consulting geologist provided said guidance and compiled all assessments, opinions and recommendations herein. The data received from the independent laboratory is assumed to be accurately delineated and transposed. Should it be found otherwise, the right to alter this report as necessary is reserved. The geologist's assessment applies to the time and place of sampling only; no other expressed or implied warranty is offered. This report is the exclusive property of King Bros., Inc., and it will not be released without prior approval.

kingbro2.doc

FIGURE 1

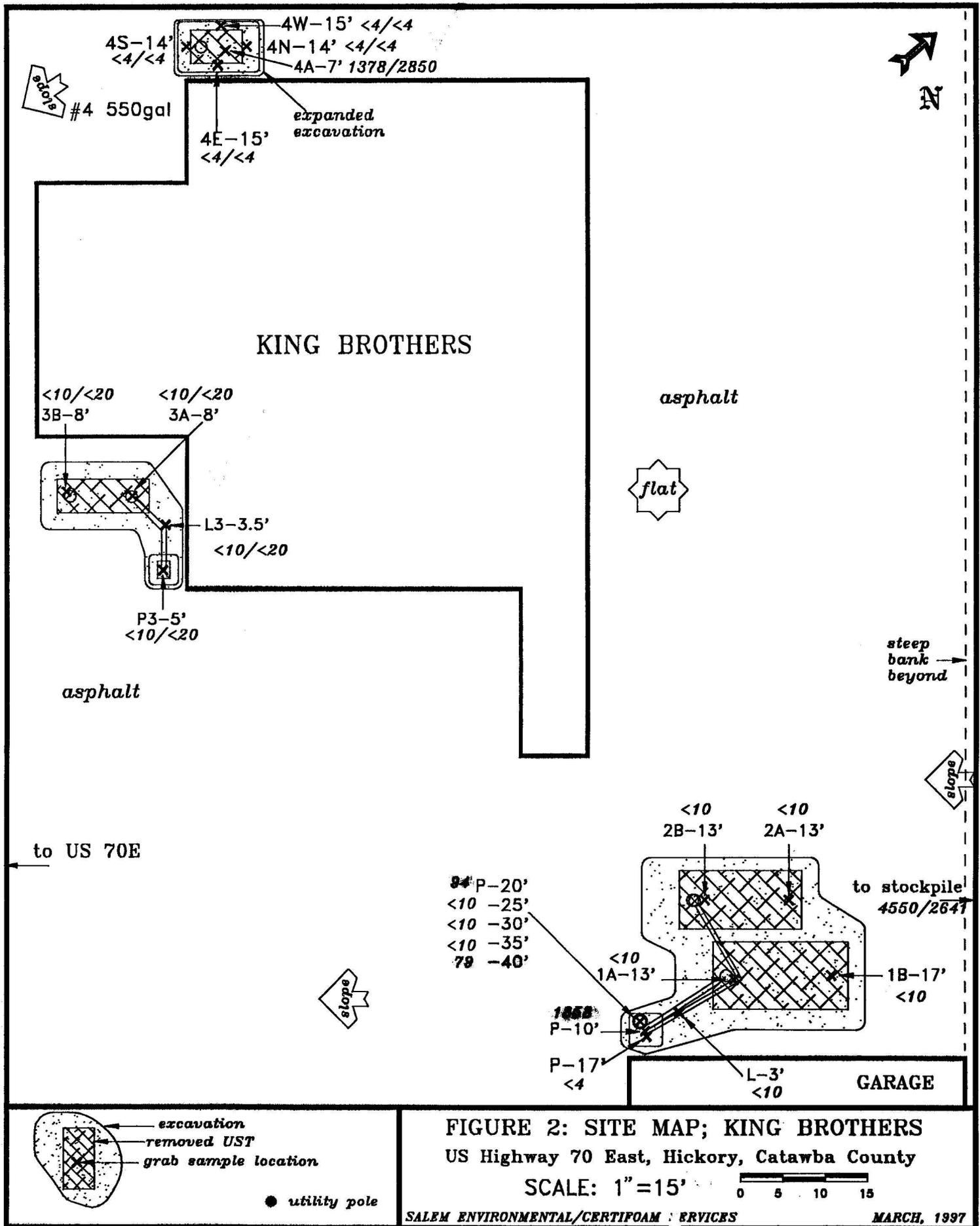


OLD SEALTEST DAIRY/KING BROS. BASE MAP

US HWY 70 E., HICKORY, CATAWBA COUNTY, N.C. 28601

U.S.G.S. HICKORY QUADRANGLE MAP, 7.5 MINUTE SERIES

SCALE : 1 INCH = 2,000 FEET



ANALYZED ASSAYS ENVIRONMENTAL
 Foster Creighton Drive
 Wille, Tennessee 37204

ANALYTICAL REPORT

Original report and a copy of the chain of custody will follow by mail.

ALEM ENVIRONMENTAL 6169
 ATN: HARVEY DANNER
 266 NORTH POINT BLVD. #107
 WINSTON-SALEM, NC 27106

Lab Number: 97-A061237

Sample ID: 4N-14

Date Collected: 7/24/97

Project:

Time Collected: 11:10

Project Name: BUCK KING

Date Received: 7/25/97

Sampler: HARVEY DANNER

Time Received: 9:00

State Certification: 387

Sample Type: Soil

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/g	5.81	4.00	1	7/27/97	13:10	J. James	8015M/5030	8766
TPH (Diesel Range)	ND	ng/g	11.6	4.00	1	7/27/97	16:03	K. Walkup	8015M/3550	8704
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	86.	%			1	7/28/97	7:28	C. Garreber	CLP	8395

ND = Not detected at the report limit.

Sample Extraction Data

DFO Extracted 7/26/97 Wt extracted: 25.0 gm Extract Volume: 1.0 ml

** SURROGATE RECOVERIES **

Surrogate	% Recovery	Target Range
DIBK/DFO Surr., a, a, a-trifluorotoluene	93.	50. - 150.
DFO/TPH HI Surr., triacantane	60.0	50. - 150.

All samples have been corrected for dry weight.

** Original report and a copy of the chain of custody will follow by mail.

SALEM ENVIRONMENTAL 6169
 ATTN: HARVEY DANNER
 8066 NORTH POINT BLVD. #107
 WINSTON-SALEM, NC 27106

Lab Number: 97-A061239

Sample ID: 4S-14

Date Collected: 7/24/97

Project:

Time Collected: 11:20

Project Name: BUCK KING

Date Received: 7/25/97

Sampler: HARVEY DANNER

Time Received: 9:00

State Certification: 387

Sample Type: Soil

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.10	4.00	1	7/27/97	14:18	J. James	8015M/5030	8766
TPH (Diesel Range)	ND	ng/kg	12.2	4.00	1	7/27/97	17:44	K. Walkup	8015M/3550	8704
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	82.	%			1	7/28/97	7:28	C. Gaverser	CLP	8395

ND = Not detected at the report limit.

Sample Extraction Data

DFO Extracted 7/26/97 Wt extracted: 25.0 gm Extract Volume: 1.0 ml

** SURROGATE RECOVERIES **

Surrogate	% Recovery	Target Range
BTEX/GRO Surr., a, a, a-trifluorotoluene	91.	50. - 150.
DFO/TPH Hl Surr., triacontane	67.0	50. - 150.

All samples have been corrected for dry weight.

** Original report and a copy of the chain of custody will follow by mail.

SALEM ENVIRONMENTAL 6169
 ATTN: HARVEY DANNER
 8066 NORTH POINT BLVD. #107
 WINSTON-SALEM, NC 27106

Lab Number: 97-A061238

Sample ID: 4W-15

Date Collected: 7/24/97

Project:

Time Collected: 10:45

Project Name: BUCK KING

Date Received: 7/25/97

Sampler: HARVEY DANNER

Time Received: 9:00

State Certification: 387

Sample Type: Soil

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	5.62	4.00	1	7/27/97	13:44	J. James	8015M/5030	8766
TPH (Diesel Range)	ND	ng/kg	11.2	4.00	1	7/27/97	16:54	K. Walkup	8015M/3550	8704
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	89.	%			1	7/28/97	7:28	C. Garsner	CLP	8395

ND = Not detected at the report limit.

Sample Extraction Data

DRO Extracted 7/26/97 Wt extracted: 25.0 gm Extract Volume: 1.0 ml

** SURROGATE RECOVERIES **

Surrogate	% Recovery	Target Range
BTEX/GRO Surr., a,a,a-trifluorotoluene	90.	50. - 150.
DRO/TPH Hl Surr., triacontane	62.0	50. - 150.

All samples have been corrected for dry weight.

SPECIALIZED ASSAYS ENVIRONMENTAL
 2960 Foster Creighton Drive
 Nashville, Tennessee 37204

ANALYTICAL REPORT

** Original report and a copy of the chain of custody will follow by mail.

SALEM ENVIRONMENTAL 6169

ATTN: HARVEY DANNER

8066 NORTH POINT BLVD. #107

WINSTON-SALEM, NC 27106

Lab Number: 97-A061240

Sample ID: 4E-15

Date Collected: 7/24/97

Project:

Time Collected: 9:05

Project Name: BUCK KING

Date Received: 7/25/97

Sampler: HARVEY DANNER

Time Received: 9:00

State Certification: 387

Sample Type: Soil

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
THH (Gasoline Range)	ND	mg/kg	6.17	4.00	1	7/27/97	14:52	J. James	8015M/5030	8766
THH (Diesel Range)	ND	mg/kg	12.3	4.00	1	7/27/97	18:35	K. Walkup	8015M/3550	8704
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	81.	%			1	7/28/97	7:28	C. Gersner	CLP	8395

ND = Not detected at the report limit.

Sample Extraction Data

DRO Extracted 7/26/97 Wt extracted: 25.0 gm Extract Volume: 1.0 ml

** SURROGATE RECOVERIES **

Surrogate	% Recovery	Target Range
ETEK/GRO Surr., a,a,a-trifluorotoluene	92.	50. - 150.
DRO/THH Hi Surr., triacortane	63.0	50. - 150.

All samples have been corrected for dry weight.

**SPECIALIZED ASSAYS
ENVIRONMENTAL**

REFERRING CLIENT



2960 Foster Creighton Drive
Nashville, TN 37204
615-726-0177
FAX 615/726-3404

BILLING CONTROL NUMBER (FOR LAB USE ONLY)	PROJECT #	P.O. #
---	-----------	--------

SAMPLERS (Signature-Please Print) <i>Harvey Danner</i>	PROJECT NAME <i>Buck King</i>
---	----------------------------------

FOR LAB USE ONLY ACC#	SAMPLE DESCRIPTION	DATE	TIME	COMP	GRAB	# OF CONT	ANALYSIS REQUESTED
	4S-15	7/27/11			X		15030/3550
	4N-14	7/27/11	1110				↓
	4W-15		1045				
	4S-14		1120				
	4E-15		105				

Relinquished by: (Signature) <i>Harvey Danner</i>	Date / Time 7/29/11 515	Received by: (Signature) FEDEX	Received for Laboratory by: <i>[Signature]</i>	Date / Time 7/25/11 0900
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Remarks <i>[Signature]</i>	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)		

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite side



SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

SALEM ENVIRONMENTAL 6169
ATTN: HARVEY DANNER
8066 NORTH POINT BLVD. #107
WINSTON-SALEM, NC 27106

Lab Number: 97-A074566

Sample ID: P-17

Date Collected: 9/ 3/97

Project: 2007

Time Collected: 9:15

Project Name: BUCK KING

Date Received: 9/ 5/97

Sampler:

Time Received: 9:00

State Certification: 387

Sample Type: Soil

Site I. D. :

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	5.00	4.00	1	9/ 5/97	19:46	Holingurth	80158/5030	1229

ND = Not detected at the report limit.

**** SURROGATE RECOVERIES ****

Surrogate	% Recovery	Target Range
BTEX/GRD Surr., a,a,a-trifluorotoluene	112	50. - 150.

Report Approved By:

Michael A. Dunn

Report Date: 9/ 8/97

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

