Witness statements
Lists of witnesses

REPORT OF APOLLO 204 REVIEW BOARD

TO

THE ADMINISTRATOR

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

APPENDIX B

179 pg.

APOLLO SPACECRAFT

The spacecraft (S/C) consists of a launch escape system (LES) assembly, command module (C/M), service module (S/M), and the spacecraft/lunar module adapter (SLA). The LES assembly provides the means for rapidly separating the C/M from the S/M during pad or suborbital aborts. The C/M forms the spacecraft control center, contains necessary automatic and manual equipment to control and monitor the spacecraft systems, and contains the required equipment for safety and comfort of the crew. The S/M is a cylindrical structure located between the C/M and the SLA. It contains the propulsion systems for attitude and velocity change maneuvers. Most of the consumables used in the mission are stored in the S/M. The SLA is a truncated cone which connects the S/M to the launch vehicle. It also provides the space wherein the lunar module (L/M) is carried on lunar missions.

TEST IN PROGRESS AT TIME OF ACCIDENT

Spacecraft 012 was undergoing a "Plugs Out Integrated Test" at the time of the accident on January 27, 1967. Operational Checkout Procedure, designated OCP FO-K-0021-1 applied to this test. Within this report this procedure is often referred to as OCP-0021.

TESTS AND ANALYSES

Results of tests and analyses not complete at the time of publication of this report will be contained in Appendix G, Addenda and Corrigenda.

CONVERSION OF TIME

Throughout this report, time is stated in Greenwich Mean Time (GMT). To convert GMT to Eastern Standard Time (EST), subtract 17 hours. For example, 23:31 GMT converted is 6:31 p.m. EST.

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

WITNESS STATEMENTS & RELEASES
APPENDIX B
TO
FINAL REPORT OF
APOLLO 204 REVIEW BOARD

APPENDIX B

WITNESS STATEMENTS AND RELEASES

Contents

The presentation of witness statements is in order of importance to the incident as determined by the Task Panel 12 (Witness Statements).

INDEX OF WITNESSES
STATEMENTS ENCLOSED

Number	Name	Organization	Position	Location During Accident
1	Babbitt, Donald O.	NAA	Project Engineer, Pad Leader	Adjustable Level A8, Service Structure
2	Gleaves, James D.	NAA	Mechanical Lead Technician	Adjustable Level A8, Service Structure
3	Curatolo, Lewis	NAA	Project Engineer, Pad Leader	*Adjustable Level A8, Service Structure
4	Reece, L. D.	NAA	Systems Technician	Adjustable Level A8, Service Structure
5	Hagar, Richard A.	NAA	Systems Technician, (Electrician)	Adjustable Level A8, Service Structure
6	Bachand, Richard L.	NAA	Systems Technician	Adjustable Level A8, Service Structure
7	Clemmons, Stephen B.	NAA	Systems Technician	Adjustable Level A8, Service Structure
8	Cromer, James Earl	PAA	Elevator Technician	200-foot Level, Umbilical Tower
9	Pleasant, Joseph H.	NAA	Systems Technician	Adjustable Level A8, Service Structure
10	Davis, Bruce W.	NAA	Systems Technician	Adjustable Level A8, Service Structure
11	Hickenbottom, Friend Dale	NAA	Systems Technician	Adjustable Level A8, Service Structure
12	Hawkins, Jerry W.	NAA	Systems Technician	Adjustable Level A8, Service Structure
13	Brown, W. Donald	NAA	Mechanical Inspector	Command Module - Adjustable Level A8
14	Owens, Jessie L.	NAA	Systems Engineer	Adjustable Level A8, Service Structure
15	Hedlund, Robert C.	NAA	Systems Technician	Adjustable Level A8, Service Structure
16	Markovich, John E.	NASA	QC Inspector	Adjustable Level A8, Service Structure

* Left Adjustable Level A8 at 1730. Returned to relieve Babbitt at approximately 1838.

17	Stoeckl, Joseph L.	NASA	QC Inspector	Adjustable Level A8, Service Structure
18	Rogers, Henry H., Jr.	NASA	QC Inspector	Adjustable Level A8, Service Structure
19	Journey, Creed A.	NAA	Electrical Leadman	Adjustable Level A8, Service Structure
22	Schneider, William J.	NAA	GSE Technician	Adjustable Level A7, Service Structure
21	Howard, Dave E.	NAA	Systems Technician	Adjustable Level A7, Service Structure
22	Scott, J. C.	NAA	QC Inspector	Adjustable Level A7, Service Structure
23	Bass, Robert I.	NAA	Systems Technician	200 Foot Level, Umbilical Tower
24	McConnell, John C.	NAA	GSE Technician	Umbilical Tower - 190 Foot Level
25	Belt, Burt B.	NAA	GSE Leadman	Elevator, 2nd Level, Pad 34
26	Rackleff, George W.	NAA-Tulsa	Systems Technician	Adjustable Level A7, Service Structure
27	Williams, Samuel	NAA	GSE Technician	Adjustable Level A7, Service Structure
28	Rooker, Forrest R.	NAA	GSE Technician	Adjustable Level A7, Service Structure
29	Wingfield, William H.	NAA	GSE Electrical Technician	Adjustable Level A5
30	Nelson, Marvin L.	NASA	QC Inspector	Adjustable Level A7, Service Structure
31	Mitchell, Patrick E.	NASA	QC Inspector	Adjustable Level A7, Service Structure
32	Deaver, William C.	NAA	Electronic Technician	Adjustable Level A7, Service Structure
33	Medcalf, Willis M.	NAA	Mechanical Technician	Elevator (3rd level going up to A8) Complex 34
34	Foster, Robert C.	NAA	QC Inspector	Complex 34 Fuel Area
35	Chauvin, Clarence A.	NASA/KSC	Test Conductor	Acceptance Checkout Equipment, Room 1, MSO Bldg.

36	Schick, William H.	NASA/KSC (DLO)	Assistant Test Supervisor	Test Supervisor's Console LCC 34 Blockhouse
37	Propst, Gary W.	RCA	Technician, OTV, Control Racks	Communication Control Racks LC 34 Blockhouse
38	Caswell, Alan R.	RCA	Communications Controller	Communication Control Racks LC 34 Blockhouse
39	Slayton, Donald K.	NASA/MSC	Director of Flight Crew Operations	Astronaut Console – LCC 34
40	Cain, Daryl O.	NAA	Spacecraft Test Conductor (017)	Acceptance Checkout Equipment Room 2, MSO Bldg.
41	Jones, Donald R.	NASA/KSC	Chief, S-IVB, Electrical Systems	LC 34 Blockhouse, VIP Room
42	Eybel, Charles G., Jr. and Rubio, Jose Manuel	GE	Technical Audio Monitors	CIF Building
43	Jordan, Albert E.	NASA/KSC	LVO Measuring Instrumentation Engineer	LC 34 Blockhouse
44	West, LeRoy G.	NAA	Spacecraft Technician	LC 34, Level A-8 at Ingress
45	Burch, James A., Jr.	PAA	Fireman	Cape Kennedy Fire Station
46	Mooney, James C.	PAA	Asst. Chief, Fire Dept.	Cape Kennedy Fire Station

INDEX OF WITNESSES STATEMENTS IN GENERAL FILE

A. T.V. MONITORS

Name	Organization	Position	Location During Accident
Allen, Ernest E.	Chrysler	Supervisor	LC 34 Blockhouse
Anderson, Robert L. III	Chrysler	Technician	LC 34 Blockhouse
Barwick, Dean E.	NASA/KSC	Flight Crew Systems Engineer	LC 34 Blockhouse
Bishop, Charles M.	Chrysler	S-IB Events Display Console Monitor	LC 34 Blockhouse
Blasky, M.	Douglas	Associate Engineer Scientist	CIF Building Room 307
Blocker, R. D.	Douglas	S-IVB Stage Historian	LC 34 Blockhouse
Brinda, W.	Douglas	Engineer, Measuring Panel Monitor	LC 34 Blockhouse
Broadbent, Joseph W.	Chrysler	Console Operator	LC 34 Blockhouse
Brown, William O.	Chrysler	OIS Monitor	LC 34 Blockhouse
Brunais, Ellsworth G.	Chrysler	Flight Control Console Monitor	LC 34 Blockhouse
Bunyak, R. S.	Douglas	Propulsion Panel Monitor	LC 34 Blockhouse
Carothers, Dale	NASA/KSC	Spacecraft Test Conductor	ACE Control Room #1 MSO Bldg.
Cheesborough, Richard S.	NASA/KSC	ST-I84-M Systems Engineer	CIF Building Room 307
Childers, Leonard H., Jr.	Chrysler	Monitor Swing Arm Panels	Complex 34 Trailer 1-048
Coleman, Gerald C.	Douglas	Branch Chief Development Engineer	LC 34 Blockhouse
Conely, F. E.	Douglas	S-IV B Test Conductor	LC 34 Blockhouse
Coonce, James M.	NASA/KSC	Operator Console A4	LC 34 Blockhouse
Dillon, James E.	Chrysler	ECS Technician	LC 34 Blockhouse

Donnelly, Paul C.	NASA/KSC	Launch Operations Manager	LC 34 Blockhouse	
Eddy, Robert W.	Chrysler	Monitor, Firing Panels	LC 34 Blockhouse	
Edson, William	NAA	Test Conductor	ACE Control Room	1 MSO
Elliott, John G.	Douglas	Supervisor, IB, Mechanics & Reliability	CIF Building	
Eri, Donald G.	RCA	Manager RCA Operations LCC 34 and 37	LC 34	
Gaskins, R. B.	NASA/KSC	Test Project Engineer (S/C 017)	Observation Room	2 MSO
Gay, Charles D.	NASA/KSC	Chief, Spacecraft Test Conductor	LC 34 Blockhouse	
Gehres, Charles E.	Chrysler	Technician	LC 34 Blockhouse	
Grant, Fred C.	Douglas	Associate Engineer Scientist	CIF Building Room 307	
Gruene, Hans F. Dr.	NASA/KSC	Director, Launch Vehicle Operations	LC 34 Blockhouse	
Harris, Robert V.	Chrysler	Technician	LC 34 Blockhouse	
Hoenstine, T.V.	IBM	I.U. Measuring and Tracking Panel Operator	LC 34 Blockhouse	
Jatulso, A. J.	Douglas	Electronics Supervisor	LC 34 Blockhouse	
Jolly, Dennis M.	NAA	Environmental Control System Engineer	ACE Control Room	1 MSO
Jumpa, J. J.	GE/ASD	ACE Display Monitor	LC 34 Blockhouse	
Kapryan, Walter J.	NASA/MSC	Assistant Apollo Program Manager	LC 34 Blockhouse	
Kelley, James A.	NASA/KSC	Monitor TV Console	LC 34 Blockhouse	
King, John W.	NASA/KSC	Chief Public Information	LC 34 Blockhouse	
Kleinschmidt, C1L.	Douglas	Group Engineer - ORD/HYD	LC 34 Blockhouse	
Kranzfelder, William J.	AC Electronics	Associate Project Engineer (G&N)	ACE Control Room 1 MSO	
Kuznicki, Henry S.	NAA	Test Conductor	ACE Control Room 1 MSO	

Lealman, Roy E.	NASA/KSC	Electrical Engineer	LC 34 Blockhouse
Lee, Chet M.	NASA Hqs.	Observer	LC 34 Blockhouse
Levetto, Mario J., Jr.	Chrysler	Technician ECS	LC 34 Blockhouse
Linsday, Thomas H. Jr.	NAA	Lead Engineer - Procedures	LC 34 Blockhouse
McDonald, Randolph D.	Chrysler	Technician	LC 34 Blockhouse
McCreary, Martin E.	NASA/KSC	SII Electrical Systems	LC 34 Blockhouse
McNally, Edward	Chrysler	Swing Arm Electrical Design Mónitor	CIF Room 307
McNeely, Maurice L.	Douglas	Mechanical Engineer	LC 34 Blockhouse
Martin, Virgil M.	Chrysler	Technician	LC 34 Blockhouse
Mason, Lyman, H.	Chrysler	Electrical Monitor	CIF Room 307
Mercier, Alfred B.	Chrysler	Console Operator	LC 34 Blockhouse
Meyer, George C.	PAA	Pad Safety	LC 34 Blockhouse
Miller, K. J.	NASA/KSC	Electrical Engineer	OIS Monitor LC 34
Monshor, Raymond M.	Chrysler	Technician	LC 34 Blockhouse
Moser, Robert E.	NASA/KSC	Apollo/Saturn Test Manager	LC 34 Blockhouse
Neely, R. D.	Chrysler	Technician	Firing Room LC 34 Blockhouse
Nelson, Isaac H.	Chrysler	Water Control Panel Operator	LC 34 Blockhouse
Orman, Donald L.	NASA/KSC	Engineer, G&C	LC 34 Blockhouse
Page, George F.	NASA/KSC	Test Supervisor	LC 34 Blockhouse
Parker, Marion, J.	Chrysler	Fluid & Pneumatics Group Electrical Unit	CIF Room 208
Payne, Viron E.	NASA/KSC	Test Support Controller	LC 34 Blockhouse
Peacock, Max J.	Chrysler	S-IB Test Conductor	LC 34 Blockhouse
Perry, Earl M.	Chrysler	Monitor, Propellant Event Display Panel	LC 34 Blockhouse

Petrone, Rocco A.	NASA/KSC	Director of Launch Operations	LC 34 Blockhouse
Ragusa, James M.	NASA/KSC	Engineer (Egress Committee)	LC 34 Blockhouse
Rengers, William C.	Chrysler	Monitor, SIB Propellant Dispersion Panel	LC 34 Blockhouse
Rockwell, Richard G.	Chrysler	Procedure Coordinator	LC 34 Blockhouse
Roosa, Stuart A., Capt.	NASA/MSC	Astronaut	LC 34 Blockhouse
Sassard, Jack P.	FEC	Technician	LC 34 Blockhouse
Schiedel, Gerald F.	NASA/KSC	Test Conductor, Spacecraft 017	ACE Control Room 2 MSO
Scoville, Donald A.	NASA/KSC	Mechanical Systems Engineer	LC 34 Blockhouse
Siskind, Jay S.	NASA/KSC	Electrical Systems Engineer	LC 34 Blockhouse
Smith, George E.	Chrysler	Power Supply & Launch Sequence Panel Operator	LC 34 Blockhouse
Smith, Joe R.	NASA/KSC	Staff/Director of Information Systems	LC 34 Blockhouse
Smith, Wallace S.	Chrysler	Technician	LC 34 Blockhouse
Talone, John J.	NASA	Program Coordinator with MSFC	CIF Building Room 307
Terry, James F.	NASA/KSC	Guidance & Control Engineer	LC 34 Blockhouse
Toback, D.S.	IBM	Technician, Telemetry	LC 34 Blockhouse
Turner, Charles A.	General Electric	Egress Committee	LC 34 Blockhouse
Turner, John T.	NASA/KSC	Flight Comp. Systems Engineer	LC 34 Blockhouse
Weaver, Billy H.	Douglas	Test Planning and Evaluation	CIF Buidling Room 307
Williams, Michael F.	NAA	Flight Test Engineer	LC 34 Blockhouse
Wilson, Virgil C.	Chrysler	Console Supervisor	LC 34 Blockhouse
Yount, Lawrence H.	Chrysler	Manager, Launch Systems	LC 34 Blockhouse

B. AUDIO WITNESSES

Name	Organization	Position	Location During Accident
Barber, Chester E.	Chrysler	Technician	LC 34 Service Structure 1st Floor West Side
Branch, Robert B.	Chrysler	Acting SIOT	LC 34 OAT Room 152-foot Level
Crane, John D.	Douglas	Electronics Tech.	LC 34 116-foot Level
Daniher, Pete M.	Douglas	Vehicle Checkout Engineer	LC 34 Measuring Station
Eldridge, Robert T.	Chrysler	Technician	LC 34 116-foot Level
Gillespie, Dallas K.	Chrysler	Assistant SIOT	LC 34 OAT Room 152-foot Level
Ham, Edwin J.	Chrysler	Technician (SIOR Recorder Operator	LC 34 OAT Station 152-foot Level
Kelley, Dean W.	Chrysler	Technician	LC 34, 152-foot Level
Kelley, John E.	Chrysler	Technician Umbilical Eject Test	LC 34 88-foot Level
Kemppainen, Willard K.	NASA/KSC	Engineer (Egress Monitor)	LC 34 Blockhouse
Leckie, G.E.	IBM	Technician	LC 34 IU OAT Station
Lindemann, Vincent J.	Chrysler	Flight Control Recorder Operator	LC 34 Blockhouse
Martin, Obrey E.	Chrysler	Technician	LC 34, Support Bldg. Room 123
Matson, Claude D.	Chrysler	Technician	LC 34, 116-foot Level
Pendleton, Philip L.	Chrysler	Technician	LC 34 Blockhouse
Perkins, William J.	Chrysler	Technician	LC 34 Measuring Station
Rogers, Lyman F.	NASA/KSC	SI Quality Surveillance	LC 34 House Trailer
Roof, Jesse M., Jr.	Douglas	Engineer, GSE	LC 34 Level A-4 outside IU door
Schlict, Wilber G.	FEC	Technician	LC 34, AGCS Area

Tipton, Charles J.	Douglas	Electrical Technician	LC 34, Level A-4 Near forward interstage
Whitaker, Billy B.	Chrysler	Technician Monitor OIS	LC 34, AGCS Trailer 609
Whitehead, Claudius D. III	Chrysler	Technician RF &TM	LC 34

C. RELATED AREAS

Name	Organization	Position	Location During Accident
Aderhold, T.R.	FEC	Telemetry Technician	CIF Building Room 291
Anderson, Deal L.	Bendix	Engineering Specialist (0_2)	LC 34 Umbilical Tower 220-foot Level
Barnum, George V.	Douglas	Operations Engineer	LC 34, outside aft interstage of Launch Vehicle
Batts, Bruce H.	PAA	Crew Chief, Fire Dept.	PAA Fire Station
Beavan, Harry E.	PAA	Elevator Technician	LC 34, Ground Level Umbilical Tower
Bilbrey, H.F.	PAA	Sgt. Security Police	LC 34 Level A-4
Blankenship, James R.	PAA	Fireman	PAA Fire Station
Bohlmann, R.R.	NASA/KSC	Communications Engineer	ACE Control Room 1 MSO
Brandon, R.E.	NAA	Power and Sequential Engineer	ACE Control Room 1 MSO
Bruckner, H.P.	Bendix	Manager, Support Branch	Unknown
Cain, James L.	NASA/KSC	Q C Inspector	LC Q C Trailer
Caris, Robert D.	NAA	Technician	LC 34 1st Level
Colevell, William E.	NAA	Technician	Home
Creighton, Henry C.	NASA/KSC	Project Engineer	VIP Room of Control Room 1 MSO Building
Darnell, Burnard E.	PAA	Security Police	LC 34 Main Gate
Dawes, Benny L.	PAA	Fireman	PAA Fire Station
Dike, J.L.	Douglas	Propulsion Engineer	LC 34 inside SIVB Aft Interstage

Fannin, Lionel E.	NASA/KSC	Mechanical Engineer	LC Blockhouse Console 8A
Fultz, James D., Jr.	NAA	Spacecraft Technician	LC 34 Level A8 at Ingress
Gallagher, Martin E. Dr.	PAA	PAA Doctor	PAA Cape Dispensary
Goodwin, Gewin H.	NAA	Technician	LC 34 - Level 7
Gorman, George W.	Chrysler	Q C Inspector	LC 34 Level A4
Gornto, Jack P.	PAA	Asst. Chief Fire Department	PAA Fire Station
Guidry, Mark	NASA/KSC	Electrical Sequential Systems Engineer	ACE Control Room 1 MSO
Hanna, Paul R.	PAA	Fireman	PAA Fire Station
Hennigan, Thomas R.	PAA	Security Policeman	LC 34 Ground Level West Side
Hinton, J.H.	Bendix	Manager, Propellant Syst. Component Dept.	Laboratory
Hipp, W.L.	PAA	Chief, Fire Department	Home
Hughes, Maynard S.	PAA	Supervisor	LC 34, Umbilical Tower 70' Level
James, George H.	NASA/KSC	Q C Inspector	Ground Level of Launch Structure
Jennings, J.B.	Douglas	Engineer Scientist	LC 34 Inside Launch Vehicle aft interstage
Jones, Ronald H.	Chrysler	ECS Technician	LC 34 Service Structure ECS Room
Kincaid, Randal L.	Douglas	Electronic Technician	LC 34 Blockhouse
McMillan, Kenneth C.	PAA	Assistant Chief, Fire Dept.	PAA Fire Station
McMyler, William F.	Bendix	Navigation and Control Test	CIF Building Room 307
Mills, Edmund B., Jr.	Douglas	Electrical Leadman	LC 34 inside Launch Vehicle aft interstage
Minnich, William T., Jr.	NAA	Spacecraft Technician	LC 34 Level A8 at Ingress
Moody, Samuel P., Jr.	NAA	Environmental Control System Supervisor	Office MSO Building
Moore, Dan L.	Douglas	Missile Technician	LC 34 inside Launch Vehicle aft interstage

Neal, Cecil E.	PAA	Crew Chief, Fire Department	Enroute from LC 37 to Fire Station
Olson, R.D.	Douglas	Electronic Technician	LC 34 Inside Launch Vehicle aft interstage
Ostiguy, J.J.	NAA	Communication Engineer	ACE Control Room 1 MSO
Plomer, Milt J.	Douglas	Section Chief, Structural Mechanical	LC 34 Blockhouse
Pride, Jim	IBM	Measuring Technician	LC 34 Blockhouse
Rector, Murray M.	PAA	Fireman	Cruising run crew
Rink, Elmer B.	Bendix	Propellant Sampler	Home
Salyer, Walter D.	NASA/MSC	Suit Technician	LC 34 Trailer
Scarborough, Robert K.	PAA	Pad Safety	N/E Corner of LC 34 Pad Area
Schmyser, Clayton F.	Chrysler	Technician Leadman	LC 34 Service Structure 152-foot Level
Sheeley, Vester	NAA	Weight Engineer	LC 34 Level A8 at Ingress
Sutton, Cermon S.	NASA/KSC	Q C Inspector S-IB	Launch Complex 37
Vallin, Jose	NAA	Electrical Systems Engineer	Office MSO Building
Van Hooser, John C. Jr.	NASA/KSC	Technician-Biomed.	ACE Control Room 1 MSO
Vaughn, Charles M.	NASA/MSC	Engineer, RASPO/MSC	Location Unknown
Warner, Alonzo E.	NAA	Electrical Power Systems Engineer	ACE Control Room 1 MSO
Watts, Wilburn Virgil	Douglas	Inspector, Missile Field	LC 34 inside Launch Vehicle aft interstage
Wilde, Walter L.	Douglas	Electrical Technician	LC 34 inside Launch Vehicle aft interstage
Wisenbaker, Harvey M. Jr.	Chrysler	ECS Technician	LC 34 Service Structure ECS Room
Wright, Edward E. Jr.	NASA/KSC	Environmental Control Systems Engineer	ACE Control Room ' 1 MSO
Yon, Ted Jr.	NAA	Supervisor Mechanical Systems	White Room during Ingress

D. MISCELLANEOUS

Name	Organization	Position	Location During Accident
Abrams, Robert D.	Chrysler	Launch Operations Inspector	Complex 34 Launcher
Acuna, R.	Chrysler	Launch Operations Inspector	LH_2 Facility
Adams, John P.	Chrysler	Station Patching/ Oscillograph Monitor	Blockhouse 34, Floor 1
Adrian, Kenneth R.	Chrysler	Measuring System En gineer (RIME)	Blockhouse 34, Rack C-24
Albright, Charles G.	FEC	Technician	Blockhouse 34 2nd Floor EA Recorder 1
Allen, R. H.	PAA	Security Police	LC 34 Blockhouse
Allen, Ronald D.	Chrysler	Quality Surveillance	Complex 34, Vehicle Mech. Off.
Allshouse, Dennis W.	Chrysler	Structure RF Technician	Service Structure, RF Room
Alva, Martin	Chrysler	RF Unit Supervisor	Blockhouse 34, Floor 1
Arlotti, Elio	Bendix	Laboratory Technician	At Home
Arrington, H. M.	Bendix	Technician	At Home
Avery, Charles B.	Chrysler	Support Engineer	Complex 34, Support Bldg.
Ayling, William T.	Chrysler	Launch Branch Inspection Propellant Networks	Complex 34 Inspection Trailer
Baer, John D.	Chrysler	Launch Operations Inspector	Complex 34, PCD
Bailey, James A.	Douglas	Flight Control Engineer	LC 34 Blockhouse
Ball, George D.	NASA/KSC	Technician	At Home
Ball, Melvin B.	Chrysler	Magnetic Tape Recorder Operator	Blockhouse 34, GSE Station
Banks, Samuel B.	Chrysler	Trailing Wire Recorder Operator	Blockhouse 34 C-17

Barkdoll, Milton E.	Chrysler	Monitor Hydraulic Recorders on SIB	Blockhouse 34 Firing Room
Baron, Thomas Ronald	N/A		N/A
Barnes, Harold F.	NASA-KSC	Q C Inspector	LC 34 Blockhouse
Barrow, John M.	NASA/KSC	Q C Inspector	LC 34, LVO Quality Trailer 254
Bassett, Paul J.	Chrysler	Supporting Test MGSE	Service Structure 17' Level
Bauserman, C. R.	NAA	SPS Engineer	ACE Control 1 MSO
Bayless, D. A.	Douglas	Engineer Scientist	LC 34 Blockhouse
Beagley, Richard C.	Bendix	Systems Safety Supervisor	Left Complex for Dinner
Beale, W. David	NASA/KSC	Instrumentation Engineer	LC 34 Computer Room
Becker, Donald E.	Bendix	Chemist	Lab. Building H5-994
Bedsole, H. D.	NAA	Technician	LC 34 188-foot Level
Bell, C. H.	IBM	BUTM Oscillograph	Blockhouse 1st floor RF station
Bennett, John	Douglas	Branch Chief	LC 34 Operations Office
Benton, Edward G.	Bendix	Technician	South Center side of 4th adjustable level (34)
Benziger, Ernest T.	Chrysler	Launch Operations Inspector	Complex 34, ECS Bldg.
Bielling, R.	IBM	AGCS Stabilizer Panel Monitor	AGCS
Birch, Ken W.	Douglas	Associate Supervisor	LC 34, Operations Office
Bitterling, M. D.	Douglas	Group Engineer	LC 34 Blockhouse
Blocher, Richard H.	Bendix	Foreman	Bldg. 3-66220 (Cape)
Bolster, Donald T.	Chrysler	Work Order Control	Complex 34, Trailer 169
Bond, Raymond H.	Chrysler	Chrysler Test Office	Complex 34, Support Bldg.
Boot, Clifford O.	Chrysler	Group Leader, Technical Documentation Unit	Complex 34, Support Bldg.
Borland, Thomas	IBM	Mechanical Systems Technician	LC 34, Mechanical Trailer 641

Braun, James E.	Bendix	Quality Assurance Technician	Complex 34/37
Bouwsma, William J.	Chrysler	DEE-6	Blockhouse 34, Floor 2
Brecken, E. R.	Douglas	Engineer Hydraulics Panel Operator	LC 34 Blockhouse
Bryan, Frank	NASA/KSC	Electrical Engineer	LC 34 Blockhouse
Bretzius, Edward D.	Chrysler	Vehicle Measuring Unit Supervisor	Service Structure, Measuring Station
Brewer, Charles W.	PAA	Security Police	LC 34, 27-foot level of Service Structure
Brown, Donald L.	Chrysler	Field Technician in MSAU	Complex 34, Support Bldg.
Brown, Julius	Chrysler	Battery Attendant	Complex 34, AGCS
Bruce, David L.	Bendix	Propellant Sampler	At Home
Buchanan, D. E.	IBM	Stabilizer Panel Monitor	LC 34, Rack B57, Stabilizer
Bumgardner, Albert	NAA	Mechanical Technician	LC 34, Service Structure Elevator, bottom
Burke, Edwin L.	Chrysler	Engineer, S1B Airborne Networks	Service Structure, Floor 2
Burlington, D.	IBM	Technician	LC 34, AGCS
Burmeister, Gerald A.	Douglas	Propulsion Engineer	Umbilical Tower, 100-foot Level
Burns, Robert	FEC	Technician	At Home
Byers, Andy	Douglas	Mechanical Technician	LC 34, Umbilical Tower, 10th Level
Byrd, Herman C.	NAA	Technician	ACE Control Room 2, MSO Building
Byrd, William R.	Bendix	Systems Safety Supervisor	Complex 37
Call, John E.	Chrysler	Launch Crew Manager	Blockhouse 34, VIP Room
Carlson, Norman M.	NASA/KSC	SI Test Operations Branch Chief	LC 34, Blockhouse Firing Room, Console A-12
Carlson, R. D.	Douglas	Electronics Propulsion Coordinator	LC 34, Blockhouse, 4B Firing Room
Carnes, Thomas H.	Chrysler	AGCS Networks Engineer (AINW)	Blockhouse 34, Power Racks

Carnley, Macey H.	Chrysler	Special Systems	Complex 34, Support Bldg.
Carpenter, Warner H.	Chrysler	Q C Inspector	Service Structure, 152-foot Level
Cesare, Donald E.	Douglas	Lead Man Mechanic	LC 34, SS, 116-foot Level
Chaille, William N.	Bendix	Technician	At Home
Chaitoff, Milton	Chrysler	DRSC GSE Ground Station	Blockhouse 34, Floor 1
Chambers, Milton	NASA/KSC	Chief, Gyro and Stabilizer Systems Branch	CIF Building
Charvet, Andre John	Douglas	Technician	LC 34, SS, OAT Room
Clements, R. D.	NASA/KSC	Engineer	LC 34, Support Bldg., Room 129
Clifford, Harold S.	Douglas	Engineer Scientist	LC 34 Blockhouse
Cobrin, R.	IBM	Technician	LC 34, Stabilizer System B56
Collier, J. G.	FEC	Shift Supervisor	CIF Building, Room 297
Collins, William C.	Douglas	Electronics Technician	LC 34, SS, Measuring Station
Comptom, R. L.	IBM	Technician	LC 34, Ground Computer, AGCS
Conner, R. P.	Douglas	Associate Engineer	LC 34 Blockhouse
Conrad, Harold E.	Chrysler	Engineer	Complex 34, DEE-6
Cook, Ross L.	IBM	BUTM FM/FM System Monitor	LC 34, BUTM FM/FM Monitor
Cooley, Dudley M.	Chrysler	Standby Relief Operator, Firing Room	Complex 34, Support Bldg.
Correll, Carl C.	Chrysler	Field Technician (Valve Lab)	Complex 34, Support Bldg.
Cortez, Romo V.	NASA/KSC	Telemetry Technician	LC 34, Blockhouse TM Ground Station
Cottingham, Robert R.	FEC	ECS Measuring Monitor	Blockhouse 34, Rack G54
Cressman, John H. P.	NASA/KSC	Q C Inspector	LC 34, Trailer 1-254
Crosswell, A. L.	NASA/KSC	Measuring Engineer	Service Structure Measuring Station

Cuchens, James K. Jr.	Bendix	Life Support Technician	South Center of 4th Adjustable Level (Complex 34)
Dahlgren, Richard S.	Douglas	Checkout Engineer	LC 34 Blockhouse
Dasse, H. D.	PAA	Security Police	Security Headquarters
Dean, John O.	Bendix	Propellant Mechanic	Spaceline Shop - Complex 34
Dearth, Alfred E.	Chrysler	Vehicle Inspection Supervisor	Complex 34
Demco, Alan	NASA/KSC	Instrumentation Technician	LC 34, Blockhouse, DDAS Ground Station
DiGiorgio, George R.	Chrysler	Pneumatics System Engineer GSE	Complex 34, AGCS
Dobbs, Bruce S.	Douglas	Group Engineer, Electronics	LC 34 Blockhouse
Drott, Art G.	Douglas	Engineer Scientist	LC 34 Blockhouse
Dryden, Guy	IBM	Technician	CIF Building, Room 307
DuPriest, W. R.	Bendix	Acting Foreman	At Home
Durnin, Chester W.	Chrysler	S1B Vehicle Instrumentation Measuring Engineer	Service Structure, Measuring Station
Dybevick, Lowell H.	Douglas	Associate Engineer/ Scientist	CIF Building
Ebbert, Carl S.	Chrysler	Launch Operations Inspector	Complex 34, Support Bldg.
Edgar, Lawrence A.	Chrysler	Simulated Propellant Loading, LOX System	Blockhouse 34, LOX Racks
Edlund, L. R.	Douglas	Engineer/Scientist	LC 34 Structural Mechanical Trailer
Elder, J.	IBM	Technician	LC 34, IU Doorway
Edmunds, Edward C., Jr.	Chrysler	ESE Measuring Unit Supervisor	Blockhouse 34, C-19
Ellis, W. P.	IBM	Technician	LC 34, Blockhouse 1st Floor, Ground Computer
Ely, George W.	NASA/KSC	Guidance and Control Technician	CIF Building, Room 307

Evans, Ralph M.	Chrysler	Launch Operations Inspector Unit Supervisor	Complex 34, Trailer 1-069
Evans, Raymond T., Jr.	NASA/KSC	Propulsion and Mechanical Technician	LC 34, Level A-4
Evitt, Johnnie E.	Bendix	Operator of 0_2 Conditioning System	At Home
Evjen, J.	IBM	Technician	LC 34, Blockhouse, 1st Floor, Ground Computer
Fairman, J. W.	NAA	Technician	LC 34, Level A-6
Fickey, Edsel W.	Bendix	Chief Chemist	At Home
Ford, Francis B.	Bendix	Quality Assurance Technician	At Home
Forknall, George	Bendix	High Pressure Mechanic	At Home
Foster, J. S.	PAA	Pad Safety Supervisor	At Home
Fox, Beecher, H.	Chrysler	Electrician	Complex 34, ECS Breaker Control Room
Fredlock, Armistead III	NASA/KSC	Telemetry Technician	LC 34, Blockhouse, DDAS Area
Freeze, Daniel S.	Douglas	Engineer/Scientist	LC 34 Douglas Electronics Trailer
Fritz, Richard J.	Douglas	AGCS Technician-Guidance Control System	LC 34 AGCS
Frost, J. C.	General Elec.	Quality Control Specialist	Operations Mobile Trailer Located South of the Blockhouse
Furr, Glynn R.	Chrysler	Operator & Monitor TM Receiving Equipment	Blockhouse 34, TM Checkout Station
Galasso, Vincent F.	Chrysler	Vehicle Networks Electrical	Service Structure, 27-foot Level
Gavazzi, Trent D.	Chrysler	Senior Systems Launch and Test Engineer	Service Structure, 27-foot Level
Gay, John B.	Chrysler	Launch Technician Field Supervisor	Complex 34, Support Bldg.
Gerard, Jerry	Douglas	Engineer/Scientist	LC 34, Douglas Electronics Trailer

Gibbons, Thomas D.	Chrysler	AGCS Networks Engineer (AINW)	Complex 34, Launcher
Gibson, John H.	Chrysler	Pull Trailing Wire Measurements Cable After Liftoff +5 Seconds	Complex 34, AGCS Bldg.
Givens, Charles	Bendix	Electronic Technician	Complex 37 Storage Battery
Glusing, W. H.	NASA/KSC	Instrumentation Engineer	ACE Control Room 1, MSO Building
Goard, Garnett D.	Bendix	Propellant Sampler	LAB Building H5-995
Goodwin, Gilbert D.	Chrysler	Monitor Al Engine Actuators During Hydraulic Runs	Service Structure
Gordon, Eleanor L.	PAA	PAA Nurse	PAA Cape Dispensary
Gorrell, Gene P.	Chrysler	Senior Systems Engineer, Launcher & Firing Accessories	Service Structure, 27-foot Level
Graboski, Diana L.	Chrysler	Systems Design Clerk	Complex 34, Support Bldg.
Graham, Ira F., Jr.	Chrysler	Engineer, S1B Airborne Networks	Service Structure, Level 2
Gray, Stanley D.	Chrysler	DEE-3	Blockhouse 34, Firing Room
Grenier, Frederick C.	Chrysler	Launch Operations Inspector	Complex 34, Trailer 1-069
Gustafson, Gary F.	IBM	Oscillograph Monitor, BUTM	LC 34, BUTM Oscillograph Monitor
Hacker, Ford	Chrysler	Field Technician Supervisor (MGSE)	Service Structure, 27-foot Level
Haefner, Gordon J.	Chrysler	Operate DRSC Monitor Tape Recorder	Blockhouse 34, Floor 1
Hanson, R. O.	Douglas	Electronics Technician	LC 34 Blockhouse
Harbaugh, Weldon R.	Chrysler	Unit Supervisor, Launcher & Firing Accessories	Service Structure, 27-foot Level
Harms, Eugene H.	Chrysler	LO_2 Systems Engineer	Blockhouse 34, Console 17
Harman, Joseph F.	Chrysler	Stock Man	Complex 34, Support Bldg.
Hartman, William L.	Chrysler	AGCS Power Technician	Blockhouse 34, Power Racks & PCD

Hawk, Larry A.	Chrysler	Technician/PCD	Blockhouse 34, PCD Area
Hayes, Oliver B.	PAA	Security Police	LC 34, Main Gate
Hayes, Raymond E.	PAA	Security Police	LC 34, Rest Room
Haynes, Bill L.	NASA/KSC	Electrical Systems Engineer	LC 34, Blockhouse
Hazelton, James T.	Chrysler	CITC Backup	Complex 34, Support Bldg.
Heinbaugh, James R.	Chrysler	LH_2 Technician	Blockhouse 34, LH_2 Facility
Heinmiller, Walter R.	FEC	ECS Technician	Complex 34, AGCS
Heins, Don	IBM	Backup Test Conductor	LC 34, Support Bldg, Room 117
Hennig, Robert L.	Chrysler	Measuring System Technician	Service Structure, Floor 2
Heuss, Edward E.	Douglas	Electronic Technician	LC 34 Blockhouse
Hillman, Harry E., Jr.	Chrysler	S1B Telemetry Monitor	Blockhouse 34, Floor 1
Hinkle, R. R.	IBM	Technician	LC 34, Vehicle Networks Office, 2nd Floor
Hoblitzell, Wm. Roy, Jr.	Bendix	Propellant Mechanic	Spacecraft Line Shop - Complex 34
Hoeweler, Harold H.	Chrysler	Field Technician	Service Structure, A-1 Level
Hogston, Wm. Charles	Bendix	Propellant Sampler	Complex 34/47
Hoisington, Robert E.	Chrysler	Monitor S1 Engine Movement During Test	Service Structure
Holland, D. L.	A.C. Electronics	Guidance & Navigation System Engineer	MSOB/ACE Control Room 1
Holmes, Earle C., Jr.	Chrysler	Technician, Propellant Tanking Computer	Complex 34, Support Bldg.
Hopfinger, James L.	NASA/KSC	Quality Control	Service Structure
Hopkins, Robert L.	Chrysler	LO_2 Technician	Complex 34, LOX Trailer
Hopper, U. E.	Bendix	Technician	At Home
Householder, LeRoy W.	Douglas	Electronics Engineer	LC 34 Blockhouse
Howard, J. Ron	Chrysler	Telemetry GSE Operations	Blockhouse 34, Floor 1

Howell, Harold V., Jr.	NAA	Technician	LC 34, Level A-6
Hubble, E. E.	NASA/KSC	Pneumatics Technician	LC 34, Trailer 148
Hughes, K. L.	Douglas	Technician	LC 34 Blockhouse
Hughes, W.	NASA/KSC	LOX Area Inspector	LC 34, LOX Trailer
Hunter, H. D.	NASA/KSC	IU Technician	LC-37
Hutchinson, Bertie O.	Chrysler	Recorder Monitor	Blockhouse 34, Firing Room -
Iniestra, P. O.	GE	ACE Monitor Equipment	LC 34 Blockhouse, 1st Floor
Jackson, Richard F.	Bendix	Special Pneumatics High Pressure Gas Mechanic	At Home
Jacobs, Thomas W.	Chrysler	Support S1B Telemetry Checkout	Complex 34, Trailer 2-045
Jensen, Gerald L.	Chrysler	Project Technician	Complex 34, Trailer 847
Jewell, W. O.	NASA/KSC	Electrical Technician	LC 34
Johnson, Frank O.	GE	Computer Maintenance Specialist	Computer Room 1, MSO Building
Johnson, French E.	NASA/KSC	Electrical Technician	LC 34, Blockhouse
Johnson, Robert W.	Chrysler	QC Surveillance	Service Structure, Measuring Station
Johnson, William A.	Douglas	Electronic Technician	LC 34, Service Structure 27' Level
Jones, C. W.	Chrysler	S1B Stage Electrical Networks Engineer	Service Structure, Floor 2
Jones, Lawrence D.	Bendix	Technician	Titusville Fishing Pier
Joslin, John J.	Chrysler	Monitoring ODOP Ground Station	Blockhouse 34, Floor 1
Joyner, A. L.	NAA	Instrumentation Engineer	ACE Control Room 1, MSO Building
Kaminski, Leonard T.	Chrysler	Launch Operations Group Supervisor	Complex 34, Trailer 1-069
Kammerude, Stanley D.	Chrysler	RP-1 Technician	Complex 34, RP-1
Karli, Richard O.	Douglas	Lead Engineer-SIVB	LC 34 Blockhouse
Keefe, John J.	Douglas	Associate Engineer/ Scientist	LC 34, Service Structure Aft Interstage

Keever, N.	IBM	Technician	LC 34, 124 Stabilizers, Rack B55
Kelley, Donald E.	Bendix	Supervisory Engineer, System Safety Support Department	At Home
Kenny, B.	IBM	Technician	LC 34, Blockhouse, 1st Floor
Kiernan, John	Bendix	Systems Safety Supervisor	At Home
King, John W.	FEC	Technician	CIF Building, Room 297, TM Station
King, Joseph J.	NASA/KSC	Planning Technician	LC 34, Blockhouse
Kirby, R. G.	IBM	Technician	CIF Building, Room 307
Kitchens, T. R.	IBM	IU Ground Electrician	LC 34
Koby, Raymond	Chrysler	Telemetry TRS-1 Station	Blockhouse 34
Koivu, Ray A.	Chrysler	GSE Mechanical Technician	Service Structure, A-1
Kubasko, James	NASA/KSC	Quality Surveillance	LC 34, Service Structure
Lambert, Walter A.	Chrysler	Turn-Off Circuit Breaker	Complex 34, AGCS Area
Lambert, William F.	Bendix	Propellant Mechanic	In Shop - Complex 34
Langston, Gerald R.	FEC	Technician	CIF Building, Datacore Module
Lane, R. E.	PAA	Security Police	Security Headquarters
Laudermilch, Ray H.	NASA/KSC	Telemetry Technician	LC 34, Blockhouse
Lee, Robert E.	NASA/KSC	Instrumentation Technician	LC 34, Office Trailer
Lemmon, Floyd C.	Chrysler	Pneumatics Control System Technician	Complex 34, PCD Area
Lewis, J. E.	IBM	IU Complex Manager	LC 34, 2nd Floor
Lewis, John D.	Bendix	System Safety Supervisor	Driving in Cocoa Beach, Fla.
Lewis, William K.	NASA/KSC	Technician	LC 34 Blockhouse
Lewis, Richard W.	Chrysler	Q C Inspector	Service Structure, A-1

Long, R. G.	NASA/KSC	Chief, Planning & Technical Support	LC 34 Blockhouse, VIP Room
Luke, Rodney C.	Douglas	Mechanic	LC 34, Umbilical Tower, 110-foot Level
Mack, C. J.	PAA	Security Police	At Home
Mahoney, Richard H.	Chrysler	Pneumatics Technician	Complex 34, PCD Area
Maki, Paul W.	Bendix	Propellant Mechanic	At Home
Malkemes, R. F.	Bendix	Senior Engineer, Special Pneumatics Facility, High Pressure Gas Dept.	220-foot Level of Complex 34, Umbilical Tower
Mann, Richard C.	Chrysler	Monitor S1B Telemetry Data	CIF Telemetry Station
Martin, John D.	Bendix	Quality Assurance Technician	Spacecraft Lines Office Complex 34
Martin, John D.	Chrysler	S1B RF/TM System Engineer	Blockhouse 34, Floor 1
McCarthy, Daniel J.	Bendix	Quality Assurance Technician	At Home
McEachern, Charles A.	NASA/KSC	Propulsion and Mechanical Technician	CIF, Room 307
McMechen, Margaret A.	PAA	PAA Nurse	At Home
McRae, Walter LeRoy	Bendix	Propellant Sampler	Driving in Cocoa Beach, Fla.
Meisch, John A.	Chrysler	Assisting Senior Engineer/Test Box	Service Structure, 27-foot Level
Mellott, Douglas W.	NASA/KSC	Guidance and Control Technician	CIF
Miner, James W.	Chrysler	Support Telemetry Checks	Service Structure, A-1
Merrill, K. R.	PAA	Chief, Security Police	At Home
Mook, Gerald L.	Douglas	Lead Engineer/Vehicle Systems	LC 34 Blockhouse
Moors, Dave	IBM	Technician	LC 34, RUBM, Rack C-7
Morrison, Joseph E.	Bendix	Propellant Sampler	Winter Garden, Florida
Muldoon, Raymond	Douglas	Missile Field Checkout Technician	LC 34 AGCS

Mullin, J. T., Jr.	NASA/KSC	Electrical Systems Engineer	LC 34
Munson, Harry G.	Douglas	Supervisor Manufacturing Operations	LC 34 Operations Room
Muys, Paul	RCA	Communications Technician	MSO Bldg. Room 4440
Nadeau, Robert T.	Chrysler	Technician, Vehicle Measuring Station	Service Structure
Nicholson, John L.	PAA	Security Police	Road at N.E. Corner of LC 34
Niedert, Myron A.	Douglas	Engineer	CIF Building, Room 307
Norvell, G. C.	Douglas	Structural Mechanical Engineer	CIF Building
Oberlin, Donald	Chrysler	S1B Hydraulic Pnl. Operator	Blockhouse 34, Rack 44
O'Brien, J. J.	IBM	Technician	LC 34, OAT Room 1521 Level
O'Hara, A. D.	NASA/KSC	LV & Test Ops. Mgr., Saturn 1B	LC 34 Blockhouse
Olsen, Stanley	Chrysler	Supervisor, S1B Vehicle Telemetry	Blockhouse 34, Floor 1
O'Neal, E. H.	Douglas	Mechanical Leadman	LC 34, Mechanical Trailer
Otto, William E.	Douglas	Associate Engineer	LC 34, Service Structure OAT Room, 152' Level
Overstreet, Clyde F.	NASA/KSC	Electrical Systems Engineer	LC 34, Blockhouse
Overton, T. L.	Douglas	Engineer Draftsman	LC 34, Service Structure, 114-foot Level
Parker, Sanford	Douglas	Missile Mechanic	LC 34, Service Structure, 116-foot Level
Payne, W. D.	Douglas	Inspector	LC 34 Blockhouse
Pearson, Charles A.	Bendix	Propellant Sampler	Lab Bldg. H5-995
Penovich, F. R.	NASA/KSC	Guidance & Control Technician	LC 34, Support Bldg.

Perry, William	IBM	Tecnnician	LC 34, Blockhouse RUCP Console
Phyllis, Howard L., Jr.	Bendix	Propellant Sampler	At Home
Pigg, Robert W., Jr.	GE	Computer Maintenance Specialist	Computer Room 1, Bldg.
Pipher, Marvin	Douglas	Lead Engineer - TM & RF	LC 34 Blockhouse
Pirtle, James E.	Bendix	Lab Technician	Lab. Bldg. H5-995
Pittman, William E.	Chrysler	OAT Battery Room	Service Structure, 116-foot Level
Platt, Philip C.	Chrysler	Launch Operations Inspector	Complex 34, AGCS
Ploski, B. T.	IBM	Technician	CIF Building, Computer Room 231
Pomeroy, Norman O.	Chrysler	Lab Technician	Complex 34, Support Bldg.
Pornovets, Michael	Bendix	Propellant Sampler	At Home
Porter, Earl G.	FEC	Tape Recorder Operator	Operating Tape Recorder
Powers, Tim L.	Chrysler	LOX Technician	Complex 34, LOX Trailer
Puckett, Paul E.	Chrysler	Support GSE Operations	Service Structure, 17-foot Level
Rainey, C. R.	IBM	Technician	LC 34, Flight Control Rack B47
Raley, E. O.	NASA/KSC	Instrumentation Engineer	LC 34, Service Structure
Reynolds, E. A.	NASA/KSC	G & N Engineer	ACE Control Rm/MSOB
Ricci, P. A.	Douglas	Senior Engineer-Launch Operations	LC 34, Operations Office
Richards, Charles W.	Chrysler	Mechanical Support	Service Structure, 27-foot Level
Richards, Jerry L.	Bendix	Special Pneumatics, High Pressure Gas Mechanic	At Home
Richards, Ronald F.	Bendix	Technician	At Home
Richardson, F. G.	GE	Project Engineer	Unknown
Rickert, James D.	Chrysler	Monitor Umbilical Housing Eject	Service Structure, A-1
Riddle, Albert L., Jr.	PAA	Security Police	LC 34, Blockhouse

Ridlehoover, J. O.	Bendix	Safety & Security Supervisor	At Home
Ries, Edward E.	Chrysler	Digital Range Safety Ground Station	Blockhouse 34, Floor 1
Ritchie, A.	IBM	Technician	Theodelite Hut-124 Systems
Robelen, Kenneth F.	GE	Quality Control Specialist	MSO Building, ACE Stations 1 & 3
Roberts, Wayne Elton	FEC	Magnetic Tape Recorder Operator	CIF Building, Module II
Robinson, Wilbert L.	Bendix	Systems Safety Supervisor	At Home
Rogers, Perry M.	NASA/KSC	Measuring Branch Technician	LC 34, Blockhouse
Rouse, Carroll R.	NASA/KSC	Electrical Systems Engineer	LC 34, Blockhouse
Rowe, D. O.	NAA	Technician	LC 34, 100-foot Level S. E. of gantry
Ruch, Herbert E., Jr.	Bendix	Engineering Specialist	At Home
Rudasill, Charles H.	Bendix	Foreman	Complex 39A
Rush, Russell D.	Chrysler	LH_2 Technician	Complex 34, LH_2 Facility
Russell, Orlando L.	Chrysler	System Test & Launch Engr. Supv.	Complex 34, PCD Area
Ryder, Barry A.	Bendix	Propellant Sampler	At Home
Sales, Amos H.	Chrysler	Launch Operations Inspector	Complex 34, Liquid Oxygen Fac.
Sample, Carl W.	GE	Decommutation Maintenance Specialist	MSO Building, Computer Room 1
Samples, Robert E.	Bendix	Laboratory Supervisor, Gas Analysis Lab	At Home
Sanders, William M.	Chrysler	Technician, PREV	Blockhouse 34
Santos, Tomas	IBM	Technician	LC 34, Rack B-53 Computer Console
Sapp, L. A.	Douglas	Electronics Technician	LC 34, Service Structure, Forward Interstage
Satterfield, Walter D.	Chrysler	Field Technician	Complex 34, Valve Lab

Sawyer, Arthur L.	NASA/KSC	Electrical Systems Engineer	LC 34
Schlaefer, Bryant C.	Bendix	Propellant Mechanic	At Home
Schoultz, P. A.	NAA	Stabilization & Control	ACE Control Room 1, MSO Building
Shackelford, David A.	Chrysler	RF Technician	Service Structure, A-1
Shoaf, Joseph M.	Chrysler	Recorder Operator Monitor	Blockhouse 34, Firing Room
Secor, Ray L.	Douglas	Mechanical Technician	LC 34, Service Structure, 116-foot Level
Shockley, R. L.	Douglas	Electronics Test Technician	LC 34, Service Structure, 116-foot Level
Short, Jack	NASA/KSC	Q C Inspector	LC 34, Service Structure
Shramko, John Jr.	NASA/KSC	Guidance & Navigation Engineer	LC 34, Blockhouse
Shreves, Dolores C.	PAA	PAA Nurse	PAA Cape Dispensary
Sibley, L. F.	Douglas	Electronics Technician	LC 34 Blockhouse
Simon, Marion	Douglas	Chauffeur	Driver Complex 34, Service Structure, 116-foot Level
Simonelli, R. B.	Douglas	Electronics Engineer	LC 34, Service Structure
Skog, Roy E.	Bendix	Technician	At Home
Sonnenthal, William L.	Chrysler	Engineer	Service Structure, 17-foot Level
Spiller, Henry W.	Chrysler	Launch Operations Inspector	Service Structure, A-2
Solo, Dennis	IBM	Technician	LC 34, Rack B-51 Flight Computer
Staveland, Allen R.	Chrysler	Field Engineer	Complex 34, Support Bldg.
Stelly, J. N.	NASA/KSC	Stabilization & Control Systems Engineer	ACE Control Room 1, MSO Building
Stewart, David D.	Chrysler	SIFC S1B Flight Control Engineer	Service Structure
Stubbe, R. E.	Douglas	Associate Engineer Scientist	At Home

Sudimak, Basil	Bendix	HPG Mechanic	At Home
Szott, Ronald D.	Bendix	Propellant Sampler	At Home
Tatham, Steve	NASA/KSC	Standby Van Driver	MSO Building
Taylor, Edwin R.	GE	Test Operations Engr.	Office, MSO Building
Taylor, P.	IBM	Technician	LC 34, AGCS
Terry, Marvin E.	Chrysler	Senior LC 34 Meas. Sta. Engineer	Service Structure, Meas. Sta.
Theobald, P. O.	IBM	Manager, Measuring & Telemetry Systems	LC 34, Firing Room, Ground Networks Panel
Thawley, John H.	Chrysler	Field Technician	Service Structure, Floor 2
Theofrastou, Perry	IBM	Technician	LC 34, Blockhouse
Thibodeaux, Albert W.	Chrysler	Engineer, Airborne Networks	Service Structure
Thomas, J. L.	FEC	Technician	CIF Building, Module 2 Data Core
Thomas, Palmer S.	PAA	Security Police	LC 34, base of Service Structure
Thomason, James R.	Bendix	Technician	Main Gate of Complex 34
Thompson, Arthur L.	Chrysler	Monitor Hydraulic Recorders/S1B	Blockhouse 34, Firing Room
Thompson, John P.	Chrysler	Support S1B Telemetry Checks	Service Structure, A-1
Thomson, J. C.	NAA	Cryo/Fuel Cell Engineer	ACE Control Room 1, MSO Building
Titler, Philip S.	Chrysler	Air Conditioning Technician	Complex 34, ECS
Torrence, Bernard W.	NASA/KSC	Electronics Technician	
Townsend, Larry S.	Bendix	High Pressure Gas Mechanic	GOX Pad, Complex 34/37
Tribe, John	NAA	RCS Engineer	ACE Control Room 1, MSO Building
Tucker, S. S.	NASA/KSC	Instrumentation Systems Technician	LC 34, Blockhouse

Turner, Charles A.	NASA /KSC	Guidance & Navigation Systems Engineer	CIF Building
Turner, Clark C.	Chrysler	Launch Operations Inspector	Complex 34, PCD Area
Tussler, H. R.	Douglas	Engineer/Scientist	LC 34, Service Structure between A-2 & -4 Levels
Tutwiler, C. W.	Douglas	Section Chief, Saturn Electronics	LC 34 Blockhouse
Tzareff, Paul P.	Chrysler	Support Test Operations, MGSE	Service Structure, 17-foot Level
Van Skaik, Albert L.	Chrysler	RP-1 Technician	Complex 34, Trailer (RP-1)
Vozzola, D. B.	IBM	Measuring Systems Engineer	LC 34, Rack C5
Vreeland, Arthur E. Jr.	FEC	Technician	CIF Building, Data core Module 4
Wakefield, Lester S.	Chrysler	Valve Lab Inspection	Complex 34, Support Bldg.
Walden, Gerald B.	NASA/KSC	Vehicle Measuring Technician	LC 34, Service Structure
Walsh, James P.	Bendix	Propellant Sampler	Complex 34/37
Walters, John R.	Chrysler	Propellant Tanking Computer System	Complex 34, Support Bldg.
Walters, Jurd A.	Bendix	High Pressure Gas Mechanic	Complex 34, 0_2 Conditioning Console
Ware, Edward J.	Chrysler	Chemical Cleaning	Complex 34, Support Bldg.
Washburn, J. E.	IBM	Technician	LC 34, Rack B-52
Watson, James R.	Chrysler	AGCS Ground Networks	Complex 34, AGCS
Wegelin, Wendell	Chrysler	Quality Surveillance	Service Structure, A-1
West, Edward L.	NASA/KSC	Q C Inspector	At Home
Whiteside, C. A.	NASA/KSC	Guidance & Navigations Systems Engineer	CIF Building, Room 307
Whiting, Donald F.	NASA/KSC	Q C Inspector	ACE Control Room 1, MSO Building
Whitson, James T.	Chrysler	Support Plugs-Out Test	Complex 34

Whitt, William B.	Chrysler	Pneumatics System Engineer	Complex 34, AGCS
Williams, Arthur J.	Bendix	System Safety Supervisor	School PTA Dinner
Williams, Carl M.	Bendix	Technician	Main Gate, Complex 34
Williams, Terry A.	Bendix	Propellant Mechanic	At Home
Williamson, E. L.	Bendix	Supervisory Engineer, PSCL Dept., Analytical Laboratory	At Home
Wilson, Dwayne W.	Douglas	Missile Field Test Technician	LC 34, Service Structure, 116-foot Level
Wilson, James C. Jr.	Chrysler	Launch Oprs. Insp. Unit Supv.	Complex 34, Trailer 1-069
Winborn, J. E.	IBM	Technician	LC 34, Blockhouse 1st floor, Ground Computer
Wise, Harry E.	Douglas	Missile Mechanic	LC 34, Service Structure Structure, 116-foot Level
Woodson, Mason C.	Chrysler	S1B Vehicle Electrical Networks	Service Structure, Floor 2
Wright, Roger N.	Bendix	Laboratory Technician	At Home
Wybranowski, Edward W.	Chrysler	LH_2 Panel Operator	Complex 34, LH_2 Auto Load Panel
Yeary, James R.	Douglas	Associate Engineer Scientist	At Home
Young, W.	IBM	Technician	LC 34, Flight Control Room Rack B45

COMMON ABBREVIATIONS AND DEFINITIONS

ACE	Acceptance Checkout Equipment
AFET	Facility Electrical Technician – (CALL SIGN) (AGCS Room)
AGCS	Automatic Ground Control System
APDS	Power Distribution System – (CALL SIGN) (AGCS Room)
B/H, BH	Blockhouse
BPC	Boost Protective Cover
CAST	Astronauts Communications Console – (CALL SIGN)
CIF	Central Instrumentation Facility
C/M	Command Module of the Spacecraft
Comm	Communications and Radio Frequency
CPX	Complex
CSTC	Spacecraft Test Conductor – (CALL SIGN)
CVTS	Space Vehicle Test Supervisor – (CALL SIGN)
ECS	Environmental Control System
EDS	Emergency Detection System
G & N	Guidance and Navigation
GSE	Ground Support Equipment
IDR	Interim Deviation Report
INST	Instrumentation and Telemetry
LC	Launch Complex
LCC	Launch Control Center
LES	Launch Escape System
MILA	Merritt Island Launch Area (now Kennedy Space Center, KSC)
MRCS	Reaction Control System – (CALL SIGN)
NAA	North American Aviation, Inc.

NASA	National Aeronautics and Space Administration
OCP	Operational Checkout Procedure
OIS	Operational Intercommunications System
OTV	Operational Television
PA or P/A	Public Address System
PAA	Pan American World Airways, Inc.
P&S	Power and Sequential
PL or P/L	Pad Leader
PLSS	Portable Life Support System
QC	Quality Control
RCS	Reaction Control System
RF	Radio Frequency
S/C	Spacecraft
SCS	Stabilization and Control System
SCET	Command Module Electrical Technician (Service Structure) (CALL SIGN–A8)
SCMD	Command Pilot – (CALL SIGN)
SCMT	Command Module Mechanical Technician (Service Structure (CALL SIGN–A8)
SFDS	Fluid Distribution System (Service Structure) (CALL SIGN–A7)
SLA	Spacecraft/Lunar Module Adapter
S/M	Service Module
SPAD	Pad Leader – (CALL SIGN)
SPLT	Pilot – (CALL SIGN)
SPS	Service Propulsion System
SSET	Service Module Electrical Technician (Service Structure) (CALL SIGN–A7)
SSRP	Senior Pilot – (CALL SIGN)

STC	Spacecraft Test Conductor
T/C, TC, T.C	Test Conductor
TM	Telemetry
TPE	Test Project Engineer
T SUPER	Test Supervisor
UFET	Umbilical Tower Facility Electrical Technician
VOX	Voice Transmission
W/R	White Room

DONALD O. BABBITT
NAA
JANUARY 28, 1967

I was stationed at the Pad Leader's desk, verifying that per the procedure, support was ready for umbilical pull at T-0. The time period in here I can only estimate as 5 to 15 seconds. I heard on the head set (Channel Black-3) Mr. Chaffee say, "There is a fire in here," (or words to this effect). I ordered the mechanical lead man, Mr. Gleaves, to "Get them out of there" (meaning remove the hatches and get the crew out of the Command Module). I started to turn toward the Communications Box (on my left), when out of the corner of my eye, I saw flame come out from under the boost near the steam duct. I almost completed my turn when I was hit by a concussion or sheet of flame (I don't remember hearing an explosion) and was pushed toward the communication boxes. My next thoughts were to get out of there. (I never had time to notify the blockhouse). I went to the umbilical (White Room) arm, and went across it to the umbilical tower where I encountered three of the spacecraft mechanics and an elevator talker who had a head set. I told the talker to inform the test supervisor that we were on fire and that I need firemen, ambulances, and equipment. With the three mechanics (Messrs. Gleaves, Hawkins, and Clemmons) we grabbed the only CO_2 bottle available and went back to the White Room to try to remove the hatches. The smoke and heat was so intense that we could only spend a short time in the White Room (possibly 1-2 minutes). After several trips back and forth Mr. Gleaves almost passed out due to smoke inhalation so I ordered him to stay out, which he did but for only a short time.

After the smoke had cleared some, I could see that the Spacecraft Technicians and Quality Control (NASA and NAA) had been able to get back into level A-8 and were fighting fires with everything available, so I got some more men and continued as best we could (because of the smoke and heat) to remove the hatches. We attempted to both remove the inner hatch or lower the hatch down inside the Command Module. We were not successful in removing the inner hatch and could only lower the hatch about 75 to 80% of the way because of obstructions. I was at that time only able, again because of the smoke which was considerable, to observe only two of the flight crew but could not recognize who it was. The inner hatch was extremely hot and we could only handle it with the handles attached to the hatch. My observation at the time of hatch removal was that the flight crew were dead and that the destruction inside the Command Module was considerable. After informing the test supervisor of what I had observed (while adhering to security guidelines wherever possible) and continued to direct the crew in putting out the fires. I asked the senior Pan American firemen to specifically check the Launch Escape Motor for hot spots and general heat.

I was relieved by Mr. Curatolo, NAA 1st shift pad leader.

I proceeded down the umbilical tower elevator, met the two NASA doctors and briefed them on what they would find. I then proceeded to the Pan American Dispensary, with a short stop at the NAA Shop Trailer, for treatment and checkup. I was treated for smoke inhalation, flash burns, and eye irritation, and ordered to remain overnight.

I feel that the Spacecraft Crew (Technical, Mechanical, NAA Quality Control, and NASA Quality Control) performed commendably well in this emergency.

I feel that there should be a number of things taken care of immediately by safety from the standpoint of working crew and Equipment Safety.

/s/ Donald O. Babbitt

WILLIAMS: The Pad Leader is on the upper level by the spacecraft. He is more or less in charge of pad operations. He reports back to the blockhouse and who in turn reports back to the control room where the test is being run from. The test is run from the blockhouse and the control room is back here in this building. He was taking direction from the blockhouse or the North American project engineer who is back here. The activities up there fall under his responsibility.

PETRONE: Where would you want him to sit or speak from the microphone? Put him there next to you, Dr. Thompson.

THOMPSON: One thing I think we should say is that the statement that you make will remain in the same -- leave yourself in the same category in keeping all this testimony within the same restraints that have operated up to now. The fact that you have talked to us doesn't relieve you of that obligation.

BABBITT: I understand perfectly.

PETRONE: We cannot hear you.

BABBITT: I have a hoarseness because of smoke damage, so I ask if I can move a little closer. May I speak freely or .....

THOMPSON: Go ahead. Tell us what happened, to your observation.

BABBITT: Well, as the North American pad leader on the 2nd shift, I was stationed at the pad leader's desk. At the time of the incident I was verifying that we were ready at T minus zero for umbilical pull as per the procedures. This is a manual pull and we were checking to make sure all our lines were clear. At the time it had happened, I heard and I can almost definitely state that I believe it was Mr. Chaffee say something to the effect of fire in the command module, fire in the spacecraft, the term fire sticks to me more than anything else. I ordered my mechanical lead man, Mr. Gleeves, to proceed toward the hatch for removing the crew, and started to turn, I was facing the spacecraft. You gentlemen are familiar with the layout up there.

THOMPSON: We have been there.

BABBITT: You know where the pad leader's desk is?

THOMPSON: That the desk with the telephone on it?

BABBITT: Yes, sir.

THOMPSON: You were at the desk?

BABBITT: Yes, sir, I was facing the umbilical at the time.

PETRONE: Were you sitting down?

BABBITT: No, I was standing. I had started to turn toward the comm box to call the blockhouse either on normal comm line or page whichever was open. Out of the corner of my eye I believe I saw which was flame from under the boost protective cover in the area what could be the steam duct and continuing my turn. I never made it to the comm box because at that time more or less over my head I felt a pressure and heat and flame and I never made the call to the blockhouse. My next thoughts were to get out of there as quickly as I could. I proceeded out across the umbilical arm, the walkway there, to where I got to a telephone talker who was at the elevator of a crew standing by which would have been the normal emergency egress test and they had a man stationed there and told him to inform the blockhouse through his channels of what was taking place. I was preceeded out the umbilical arm by three of my mechanics, Mr. Gleeves, Mr. Hawkins and Mr. Clements. From that time on it was - we were spent as quickly as we could, but with the amount of smoke, removing the hatches. I probably could answer questions better than I could speak freely on this. If there is anything specific.

THOMPSON: Let me ask you one question about the full length of time involved between any untoward event and/or enveloping flames. How long a period of time do you think that full action?

BABBITT: I can only guess, sir, there would be a matter of at the most maybe two to three seconds and the time it would take me to turn approximately 90 degrees to the comm box.

LONG: Is this two to three seconds from when you heard Chaffee's voice until you personally felt .....

BABBITT: Yes, sir.

THOMPSON: That is, this means then that the first evidence you had there was anything untoward happening was that voice.

BABBITT: Yes, sir.

YARDLEY: And almost simultaneously you saw this flame coming --

BABBITT: As I was turning I saw it from under the boost cover.

YARDLEY: Two or three seconds after that you felt the big pressure?

BABBITT: Yes, sir. In seeing the flame under the boost cover we, also, having been out there and been at the spacecraft many times when we do a normal cabin pressure check to where the relief valve goes on the cabin, we hear the, I believe I heard and at the same time saw the flame - the normal noise that we hear with this cabin relief valve going with the steam duct. The noise is sort of hard to describe but it is something that we hear all the time and know what is taking place at that time.

MATHEWS: Were you turning --

BABBITT: To my left.

MATHEWS: To your left - but you saw the flames under the boost protective cover and not coming out of the RCS doors?

BABBITT: Right, I would attribute this to be in the area of the steam duct. It would be only speculation for me to say that maybe the command pilot had dumped the cabin or maybe the normal relief valve had dumped.

YARDLEY: You say you hear this relief valve all the time and are familiar with it.

BABBITT: When we are doing a cabin pressure check.

YARDLEY: In other words, it dumps normally at 5 psi differential.

BABBITT: Yes, sir, and its noise that most of us are familiar with having heard it a number of times, not only in the altitude chambers prior to the altitude runs there but also I heard it the same day.

FAGET: That was before you saw the fire or after?

BABBITT: It was before the main flame came. But we - I saw and I heard the venting sound and then as I say I continued my turn and a sheet of flame came towards me.

VOICE: Who did you instruct to go to the hatch opening?

BABBITT: My mechanical lead man, Mr. Gleeves, and as required he takes a crew with him. I understand it was Mr. Clements and Mr. Hawkins also.

THOMPSON: There is, I understand, an override on this relief, the pilot pressure relief that the pilot can use as an automatic relief of pressure, too.

BABBITT: Yes, sir.

VOICE: The pressure relief knot last night were not in the manual order.

YARDLEY: That would indicate that the pressure had built up in a very short time from 16 absolute to say 20?

VOICE: What is this steam tube?

BABBITT: There is a hole coming up it is a duct coming off the ECU -- coming out the side of the spacecraft, and we have a, with a boost cover on, would have a tube inserted in there - to vent this downward.

THOMPSON: There's one impression we got out there, that the flame shot out way over the desk.

BABBITT: Yes, sir.

THOMPSON: With the paper -- did you see that flame. Was it a jet of flame or can you describe it in anyway?

BABBITT: All I saw was flame coming overhead as I was almost turned toward the communications box. My back was more or less, toward the command module. I was turned maybe of a possible 90 degree turn there, we'll say 75 degrees, all I saw flame come overhead and felt the heat and concussion of it.

THOMPSON: The papers on the desk, though, were charred.

BABBITT: Yes, sir.

THOMPSON: The distance is, what do you think, 10 to 12 feet?

BABBITT: I would say it must be 12 feet.

THOMPSON: On a horizontal, on a level with only desk height.

BABBITT: Yes, sir.

THOMPSON: Our question was, it was a rather narrow confined area that got the full extension of the that flame?

BABBITT: As I understand it, I have not been out to the pad since this has happened, as I understand it, but I believe myself and several people who were very near there, the desk, were very lucky to get away.

THOMPSON: They were rather close to the desk despite the fact that the desk itself, the papers on the desk were burned?

BABBITT: Yes, sir.

MATHEWS: I think you have to be careful to assume that was a jet because there are a number of evidences around that are more direct that indicated it was pieces of flaming material that fell in the area.

BABBITT: Might I answer that. My white coat that I had on and my shirt that I had on which were - well, the white coat looked like it had been hit with material or something like this to burn holes in it. My white shirt looks like it would be residue from, the shirt that I had on looks like it would be the residue from the white coat, from being burned as such.

YARDLEY: Like a cigarette ash burn hole?

BABBITT: Yes, sir.

FAGET: There were a number of these holes?

BABBITT: Yes, sir. They were mostly on my right shoulder which as I say, I would be turning to the left. May I illustrate?

VOICE: Why don't you make us a sketch?

BABBITT: I think I can do it assuming the spacecraft is in front of me here and my comm boxes are over here, I was turning, the comm boxes are a little low, so

I was turning down towards those and it was more my right shoulder that was hit with it.

THOMPSON: Where are the desks in relation to where you were standing?

BABBITT: It would have been behind me.

VOICE: Do you have a feeling that this area round you was pretty well filled with flames.

BABBITT: Yes, sir, very much so. I had the feeling that if I stayed low, I could get out all right and I had the feeling, too, that the only direction that I had open to go from there was toward the umbilical arm. It just looked to me, although I honestly can't answer whether I even looked at the other direction - it looked to me that was the only area open for me to go towards.

FAGET: You had on a head set and a hard hat?

BABBITT: I had on a head set and a white hat.

FAGET: And you say you felt pressure on your head?

BABBITT: Yes, sir. I felt a pressure - not as a blast or anything, but a positive pressure to where I was forced toward the comm boxes or towards .... away from the spacecraft.

VOICE: Did this over-pressure last very long?

BABBITT: No, sir, it did not.

(Background discussion)

VOICE: Was the kind of pressure you felt the kind you would feel if someone opened a furnace door? Was it that combination?

BABBITT: Yes sir, more that or the pressure of someone gently but suddenly pushing you. It wasn't a hard pressure or anything of that sort but just a positive pressure.

WHITE: Have you ever lit a gasoline or something in a bottle or bottom of a can and thrown a match in it? Was it that type?

BABBITT: Yes, it was. (Looking at drawing) This would be the umbilical arm. I was standing looking at the umbilical arm, the pad leaders desk being here, I would be facing in this direction when I heard the words, "Fire" and I turned in this direction toward -- which would be the communications boxes, and as I say, the boxes are a little low so I had to bend over slightly to get to them. The umbilical arm being here, I went out this direction to the arm and then out here.

MATHEWS: In other words, you went out past the place where the flame was coming out thru the boost protective cover.

BABBITT: I think - that would be where the white room would be attached. That would be approximately here. The length of the white room here. I would be in this area here. The steam duct. It is, as you face the hatch, it's to the left and below the hatch.

VOICE: Where is the cabin vent valve?

BABBITT: It is right here.

VOICE: Does it come out through the steam duct?

BABBITT: This is what we call the steam duct. It vents through this duct.

PETRONE: The boost protective cover limits might be interesting. Where were the limits of the boost protective cover?

BABBITT: The -- it would be in this general area. I can see it from where I am.

YARDLEY: You didn't see it coming out the side, over there? Right behind the desk?

BABBITT: No, sir, I did not. The limits of the boost cover is the sections that we had on, would be approximately here and say over here.

YARDLEY: But you saw it over on this side?

BABBITT: We saw it here, underneath here, which would be in the general area of the steam duct.

VOICE: Was this the initial thing that you saw?

BABBITT: This was the initial thing that we saw. I saw it as I was turning, which an over pressure would cause the thing to vent.

MATHEWS: When did you hear that? Can you give us any estimate of time between that period and when you first heard the fire signal?

BABBITT: I heard the fire signals, well, you mean as to clock time.

MATHEWS: No, the estimate of how many seconds.
YARDLEY:

BABBITT: In relation to hearing the fire signal. The time it would take me to say to a man standing in front of me, "Get them out" and turn, like that. Whatever length of time that is.

YARDLEY: Was that valve sound a single sound or.....

BABBITT: Sort of a whooshing sound.

MATHEWS: Did it signal more than once?

BABBITT: All I heard was once.

PETRONE: Was there a definite click or just a whoosh?

BABBITT: There is a definite whoosh and a cutoff, in normal conditions.

VOICE: You used the phrase earlier when you were talking about this **flame** by the steam duct area. You used this phrase, "Seeing it out of the corner of your eye". Is there any doubt in your mind as to whether you saw a flame?

BABBITT: No, sir, there is not. There is no real doubt in my mind that I saw it. It's an outstanding feature of things that we normally see in there. There is something that was unusual, but I was still making my turn towards the communications box.

FAGET: When did you inhale the smoke to your knowledge?

BABBITT: After we had proceeded out on the umbilical arm. The - I talked to the telephone talker, to the talker at the top of the elevator. Then I proceeded back in with the three mechanics who were with me to get to the hatch if possible. We were in there - time is - it's hard to say how much time there was. I would say not more than 30 seconds. In there long enough to know and be able to tell that we could feel the hatch. We could see it up very close but the smoke was so thick that we couldn't stay in there very long. We went out, grabbed the only $C0_2$ bottle on the umbilical arm on that level, went back in again, spent a little longer in there, we got the boost cover hatch off. The tools were in the white room. We had placed them there for the emergency egress test anyway. So we knew where those were. It was just a single multipurpose tool. After taking that off, we left again. We made any number of trips in and out of there. I guess on possibly the third trip the smoke had cleared enough down on the deck below the umbilical arm to where I could see my head set and I stepped down and put it on and that's the first contact I had with the blockhouse, then. From that time on, we made a number of trips in and out. We did as we could as long as we could stay in there and then came out. We more or less went in as a group and came out as a group. As I was coming out I would report to the blockhouse, as best I could at the time. I know Mr. Page probably thought that there was something wrong that I kept yelling for people and equipment and things. At the time the smoke was so heavy that I couldn't see that there were people. My own spacecraft technicians, mechanics, NASA QC, NAA QC had gotten back into the level and were on the other side and were working on the fires in the area. We needed, at the time, we needed some sort of as I call it some sort of a battle lantern. These old Navy lanterns that you pick up. We couldn't see the hatches well enough to work very long. At one trip in we had to spend more than half of the time in there looking for the tool because as we came out we must have placed it in a little different position. As I was informed later on, it was about five minutes before we got the hatch off. I may very honestly have been possible 15 to 30 seconds late in reporting it to the blockhouse, because during that period of time we were trying to maneuver the inner hatch, to either take it out which has to be rotated to get it out or to get it down, to drop it down inside. We finally, I told them to drop it inside to place it in there as close as they could and then I reported it to the blockhouse that the hatches were off. Then I went back in and made my own observations on what I saw.

VOICE: Did you have to get special handling equipment to handle the inner hatch?

BABBITT: There are handles on the inner hatch which, fortunately, were hot, yes, but they could handled. The face of the hatch itself was extremely hot, but the handles were cool enough where we could handle it and could lower it or maneuver it.

VOICE: With your bare hands?

BABBITT: Yes, sir.

VOICE: What exactly was this fire indication at the steam vent? Was that the only part of the time you took off for the umbilical arm? Was that the only evidence of fire?

BABBITT: Prior to the main force, yes sir, that was the only impression that I had. As I say other than the call that I heard.

BAXTER: As to the - I'm interested in the sequence again. As to the time you heard the fire sounded by one of the individuals the time you saw the flame coming out of the vent the time you could tell it on the back of your neck. Could you give us this one time again?

BABBITT: Colonel, that's the thing I can't give you in time unless I timed it myself. Maybe one to two seconds. That's in the time it would take as I tried to illustrate to tell a man to get the crew out and start turning towards there. Seeing this but continuing to turn anyway one to two seconds, was all that I can say.

BAXTER: First time was the signal that you heard over the intercom?

BABBITT: Yes sir, the term fire, I couldn't tell you whether he said, in the Spacecraft, or in here or Command Module.

VOICE: Fire?

BABBITT: Right.

VOICE: Then the vent valve?

BABBITT: Then the vent valve.

VOICE: Then on the back of the neck?

BABBITT: Right, yes sir.

YARDLEY: Did you hear any other noise after the vent valve immediately preceeding this big rush of heat?

BABBITT: No sir, I don't remember hearing the pressure release, the main force. Maybe it was because I had my back to it. I didn't hear it.

LONG: Have you given all of this also on tape, has all this been recorded?

BABBITT: I have only spoken to my own management.

YARDLEY: Did you make a written statement?

BABBITT: Yes sir, I have.

LONG: The reason I'm interested is that the some of these sequences, events, that followed for plus 30 seconds would be interesting to look at but the problem is somewhat lengthy. Maybe it would be better if we have it in a statement. Is that available?

BABBITT: I have written a statement, yes sir. I may be able to amplify possible the first 30 seconds a little bit more if you wish me to in writing, but the first 30 seconds, it happened so fast, it's hard to explain it any better.

FAGET: I'd like to ask you some more questions. Now on the events when you first went into the white room.

BABBITT: After we had evacuated?

VOICE: The first time in and tell me when that was.

BABBITT: My very first time in the white room that day, was when.....

VOICE: No, no, after the fire.

BABBITT: O. K.

VOICE: How long after the fire when you first went in and I'd like to know about the condition about the smoke in the white room, what your impression where it was coming from and could you see in the window.

BABBITT: O. K. As we proceeded into - across the umbilical arm, there was billowing smoke coming out the level.

VOICE: Billowing smoke, what color?

BABBITT: It was a very dark gray. Seems to stick in my mind. It was a very heavy, thick smoke. As we proceeded in farther, knowing the umbilical arm as we spent quite a bit of time on it, the smoke was there we could see to a certain extent towards our feet and our hands. The hatch window -- I honestly don't remember looking at it.

VOICE: You didn't see any flames, is that it?

BABBITT: No sir, I don't believe I did, but I don't honestly remember looking in there.

VOICE: Can you recall seeing fire or lighting?

BABBITT: I did see fire in there, yes sir, but the fire that I saw primarily was from under-

neath, coming up under the hood of the white room outside the command module. We used the one fire extinguisher that we had to put out any small local fires in the white room of which they were only around the hood of the white room. Then as I say, the smoke was heavy and billowing enough to where we could only see in a small area we were trying to work in. We had to be pretty close to do that.

VOICE: That first moment you did not locate the tool.

BABBITT: Yes sir, we did locate the tool, because we had placed it in a specific spot. As I say, we had done preparations for the emergency egress teams that would have made a normal emergency egress test later on, so we knew where the tool was.

PETRONE: I've got a question I may pose to the Board to ask you.

BABBITT: Yes sir.

PETRONE: The white room quite large is up high. This area over the hatch is up fairly high and the boost protective cover is about right to the right of the shelter there's a gap in there now which has been blown out a couple of inches between the boost protective cover and the heat shield. You were standing here as you looked. Just where did you see the flame? Did you see it in this area or did you see something come up over the top?

BABBITT: Before all of this happened, the boost protective cover was laying not perfectly flat against the command module, but we will say within 1/4 to 3/8 of an inch from it. It was faired in as it would normally be. There was no large gap there. As I say I - it appeared to me to be more underneath the white room which is where the steam duct would be.

PETRONE: The steam duct is on this corner.

BABBITT: Yes, sir.

PETRONE: And roughly how far from the aft heat shield?

BABBITT: The steam duct itself is about, I'd say a foot above the aft heat shield.

PETRONE: Fairly low, then isn't it?

BABBITT: Right, but where I would see it would be below the aft heat shield because of the section of the boost protective cover that was on there. In fact we would see it to a certain extent almost down at the service module.

PETRONE: Looking from here, your line of sight would take you to here.

BABBITT My line of sight being - my drawing isn't too well in scale. Standing here we can see this area underneath here, and it was underneath the hood of the white room.

PETRONE: You looked then underneath the hood when you first saw flame and what direction was it going?

BABBITT: It was more or less down, more or less down under the heat shield - boost protective cover.

PETRONE: And what color was it?

BABBITT: Oh, I would say a bright orange - it wasn't a yellow flame. It was more like a bright orange.

FAGET: This was after you felt the heat.

BABBITT: No, this was before.

FAGET: Before you felt the heat.

BABBITT: Yes, sir.

MATHEWS: You never saw the thing coming out other than ---

BABBITT: As I say, I did not see the main flame.

BORMAN: Prior to all this, you saw no smoke or smelled no odors whatsoever.

BABBITT: No sir, I might point out as I believe has been pointed out before. I came in my normal shift around 3:30. Mr. Cortolla the first shift pad leader remained on since he had started the -- he had put the crew in and had started the closeout. We normally do this rather than relieve and make a break in the middle of an operation like that. I was present when there was an odor detected coming out. We had a sensing port which we use to check the oxygen level in the spacecraft as a part of the cabin pressurization and this sensing port is right, very near the white room door and I ah - the other people working in there smelled this odor. This is the only unusual item that we ran into.

MATHEWS: That was the odor that Grissom alluded to.

BABBITT: I believe it is, yes, it was that - the odor that he mentioned was before I had come in to work, before I had come up to the white room, to that area.

VOICE: You smelled this how long before the fire broke out?

BABBITT: Oh, it was a good 2½ hours. The inner hatch was closed.

MATHEWS: What was the odor like?

BABBITT: It was sort of a pungent odor, an odor like, oh, not carbon tet or anything like that, a mixture of maybe ammonia and oh, just a - the way I can describe it is a strong potting compound odor, some of the commercial potting compounds.

MATHEWS: It was an oily odor, was it?

BABBITT: No sir, it wasn't.

MATHEWS: Was it a volatile material odor?

BABBITT: It didn't appear to be, no. It reminded me of a potting compound that we had been using earlier that we were all familiar with.

THOMPSON: Did it smell more like an overheated potting material?

BABBITT: No sir, this smelled like removing the cap from this potting compound in preparation to use it.

VOICE: How widespread was that odor?

BABBITT: As I say, we were right near the sensing port where we attach the Beckman analyzer and there was just a venting out there. That is right beside the hatch going into the white room. -- The wall on the right as you go in the door.

MATHEWS: Could you think a little bit more on what that odor would be like and give someone a note on what that odor was like?

BABBITT: Yes sir.

WHITE: That sensing port going into the suit loop or into the cabin?

BABBITT: It goes into the cabin. It comes out the same point of the hatch that we pressurize the cabin with.

YARDLEY: You were smelling what coming out of the Beckman?

BABBITT: Right.

YARDLEY: In other words, this was a sample of what was going through the Beckman into the exhaust, to the white room?

BABBITT: Right.

VOICE: And was this just a temporary whiff or did it persist for a long time?

BABBITT: No, with the Beckman analyzer, you repeatedly squeeze the bulb to get air samples, and we were getting it continuously while we were taking our samples.

YARDLEY: So when you sampled, you got it?

BABBITT: Right.

VOICE: Then it went away after a while.

BABBITT: It appeared to. After we had purged once more, it appeared to lessen.

VOICE: You repurged the cabin to get rid of it?

BABBITT: As I understand it, as I say, I was only observing it at the time because the other pad leader still had the control of things.

DONNELLY: It took them a long time to purge? Correct? You know nominal is 20 minutes and you were in there for at least an hour purging. Is that right, George, about an hour?

PAGE: Yes -- something to the effect of recalling - I think the numbers were that for the first 20 minutes they got 50%, then they purged again for 15 minutes. About 75% at that time they suspected the Beckman analyzer. They got another Beckman analyzer and did another purge -- (interrupted) (goes right into the continued typed sheet) -- and got 92%

PETRONE: I'd record that for the record that statement by George Page who is Test Supervisor.

LONG: Is that sequence of purging in itself unusual?

PETRONE: No, its been encountered before, it's longer than the nominal time.

DONNELLY: No, it's longer than what you set your sight for, but it has been encountered prior in an altitude chamber run. You can't say that it's something new.

VOICE: I think the real details on that could be better defined -- by others.

THOMPSON: Are there any other questions that you want to ask while he's here?

LONG: One thing I gather is that none of you was equipped with any kind of mask. That is not the procedure for this.

BABBITT: We had gas masks up there, yes sir, they were the standard, oh, I believe mining gas masks. I myself tried twice to use them, I had - because well, the first time, I pulled the tape off the bottom of one of them and tried it and it just sucked up tight at my face like I wasn't getting any air through it, so I tried another one and they had the telephone talker because I couldn't see too well, because the amount of smoke that I had been in -- had him pull the tape off it -- he hadn't been exposed to any smoke. I tried it and it didn't work either. I have heard the same comment from a couple of my mechanics also. We did have masks at work, yes, but the masks didn't work long enough for anyone to spend a long period of time in there. They, the men, said they'd get in there maybe spend possibly a minute or a minute and a half and they would start choking up, too.

MATHEWS: One thing I would have done, you may have stated, I think you did say you initially went into the white room and approached the hatch and thought there were flames in that area.

BABBITT: There, we saw, flames around the hood area of the white room.

MATHEWS: And how long a time was that between the first time, between the fire signal and that sighting.

BABBITT: Possibly 30 seconds. 30 - 45 seconds. As long as it would take me to go out of the to the umbilical arm and turn around and come back into the white room.

FAGET: How long once more, how long was it from the time you heard the relief valve and you felt to your right side was pressure.

BABBITT: Nearly simultaneously? or were

VOICE: No, they were not simultaneous. There was a delay between them, yes. I could speak in terms of two and three tenths of a second but the time isn't, I couldn't answer you really how long it was.

VOICE: What happened before that .... it was less than ....

VOICE: Yes sir, it was such a quick period of time that I couldn't tell you how long it was.

VOICE: Dr. Debus asked a question, would you like to answer?

VOICE: Yes sir.

DEBUS: This arrow indicates that you went this way....

VOICE: Yes sir.

DEBUS: and you gave the others order to tell the blockhouse....

VOICE: I gave, I went out the the talker at the umbilical tower elevator.

DEBUS: It is all the way....

VOICE: It is all the way out to the end.

DEBUS: Did you observe at that time anything back towards the white room.

BABBITT: Smoke and flames, that's all I could see.

DEBUS: You saw flames in the white room.

BABBITT: In the whole area there was random fires.

DEBUS: Including the platform enclosure?

VOICE: Inside, yes sir.

VOICE: Yes. Can you estimate how long it took for your departure to go back to the white room. There is a door I believe.

VOICE: Yes sir, there is. That door by the way was opened by the three mechanics who went out ahead of me.

VOICE: They went out here, opened the door and then went in?

VOICE: Yes sir.

261-103 O - 67 - 4

DEBUS: Was there anybody in the white room at the time?

PETRONE: Which door, there are two doors there.

BABBITT: OK, there is a door this thing right here on the white room. There is also a door.....

DEBUS: Does that have an automatic closer?

VOICE: That door we have locked open as part of the procedure for the emergency egress which would have normally taken place.

VOICE: This door here opens inward?

VOICE: Yes.

VOICE: I came across up the three small steps and out this way through this door. This door was already open. As I understand it from my two mechanics, my three mechanics, they were approximately somewhere in this area when the main force went -- they went out this way. The door was already open when I went through it.

DEBUS: What do you describe as the main force?

BABBITT: The flame and heat that hit me at the largest part of it.

DEBUS: While you were still there?

BABBITT: Yes sir, while I was still up there.

VOICE: Where's the other door to the part of the white room that opens into the hatch? Is there one on the other side?

VOICE: There isn't a door as such, there's a large area.

PETRONE: There's another door....

VOICE: There's another door on this end....

DEBUS: that's always opened close it....

VOICE: No it is not, no.

PETRONE: For the test....

VOICE: For our normal operation we kept this door closed, then we could control the access to the white room and try and maintain white room conditions.

DEBUS: How was this door during the event?

VOICE: This door? Was closed.

VOICE: Was it locked?

VOICE: I believe it was, yes.

DEBUS: There was nobody else inside the enclosure?

VOICE: To my knowledge, no, Dr. When it happened, my only thoughts were to get out. The only way I could see out was across the umbilical.

VOICE: Where were your three mechanics that preceded you?

VOICE: They were, as I say, I had given the order to get them out.

VOICE: Yeah, but I mean where were they before this ever happened?

VOICE: Before this ever happened they were right near me because they were the same gentlemen who would be working on the umbilical pull at T minus zero.

VOICE: Was there anybody up there near the hatch?

VOICE: No sir, there was not.

DEBUS: So you felt that you could not get the astronauts out that flame sheet and therefore you went there. Then when did you decide you could try by now? Had it subsided?

VOICE: After it had subsided my thoughts are sort of confused to be honest with you as to which I really thought of first and get back in or to let the blockhouse know what was going on. After I told the telephone talker up here to notify the blockhouse, then the four of us proceeded back in here.

DEBUS: So by that time something had subsided

BABBITT: Yes sir, I would say this was possibly 30 to 45 seconds.

DEBUS: I see. So was there still flames visible in a flow out sheet? Or was there more localized?

BABBITT: No sir, more random fires, small fires. To be honest with you, we couldn't even see the smoke was thick enough where we couldn't initially see the fire in this area. I saw....

DEBUS: That area would be closed by the enclosure, this is outside the enclosure.

VOICE: This would be the main....

VOICE: Is that inside the enclosure?

VOICE: Yes sir, there is a large portion inside.

VOICES: Jumbled questions. Inside what enclosure?

VOICE: This would be the level 8 structure here and this portion is inside that structure.

DEBUS: When you went in and out you went out here to get some breath of fresh air.

VOICE: Yes sir.

VOICE: And back in through here.

VOICE: Yes sir. The period of time I was talking to Mr. Page, the test supervisor, I was approximately here. I found my headset was approximately here.

VOICE: Now on the headset, is your assumption you started out with the headset but dropped it on the way out?

VOICE: I have a feeling that I ran out from under my headset. I don't think I took it off first.

YARDLEY: Were you plugged in at the time?

VOICE: Yes sir.

VOICE: Where were your gas masks?

VOICE: The gas masks would have been in a box right here.

VOICE: You had to go back over and get them out.

VOICE: Yes, the.....

YARDLEY: How did you get around to there?

VOICE: Well, there was some down on the umbilical tower, there were some on the next level below and one of the men got some up to us.

VOICE: You didn't actually go down and.....

VOICE: We had about five of them, five or six.

VOICE: These were used yes by the crew other people who came back in. There was a problem with that, also, which I should point out in that when you went out the doors on these levels, on levels, six, seven and eight, they were the crash bar type doors. When you went out, you were locked out. One of my mechanics, Mr. Metcalf, went down as I understand it about four levels on the gantry, came across on the first level he could, and came back up the one side only where there is a door that is always unlocked from the outside, which would be our normal access, this is done for cleanliness, and security reasons. So, most of the crew until someone opened the doors was locked outside of the level 8.

VOICE: How many men were in the enclosure at the time started this and at various intervals.

VOICE: Up on this level I would have to estimate about 18 to 20 at the time. We have a normal spacecraft crew up here and QC plus we had GSE people also who were supporting us for the umbilical pull, down on level A7 but up on structures so they could support the umbilical from below to prevent damage was more GSE, mechanics and technicians.

VOICE: Do you know when the east door, Colonel Baxter, of the white room is open?

VOICE: No sir, I don't, it was much after I left.

VOICE: Which door is that, the one right there by....

VOICE: Within your crew, sir, is there any summary responsibility about the question of getting crew out in emergency removal crew, you speak of these 18 people, was this particular responsibility specifically yours or the three mechanics you had with you? Others that were presumed had orders to be involved at this time.....

VOICE: It was the responsibility of the mechanical lead man to take his direction from me and he had delegated, designated certain mechanics to be with him unless properly relieved in case we had some condition where we had to take the hatch off. We thought more in terms of test scrub or something like this. Most of our mechanics are experienced in handling the hatches anyway. But he picked two of his best men to work with this and they were staying right with it.

THOMPSON: I think I understand that the situation relative to what you, the first things you saw. The first thing in sequence, first was audible indication of trouble, the voice.

VOICE: Yes sir.

THOMPSON: Second, and with a very short period of time, maybe two seconds later, you saw flames on the far side.

VOICE: Yes sir.

THOMPSON: And from there on there were many, there was flame and smoke and all this other action and I don't believe that you said you ever got to see flame inside the, this capsule.

VOICE: Not to my knowledge. We, in the time that we spent in there I have to be very honest with you I don't think we specifically tried to look in there.

THOMPSON: I understood you. This does not mean there wasn't flame, it means as far as you're concerned your observation was flames is all identified with external sources.

VOICE: Yes sir. At the time I will say this, at the time that we did get the inner hatch open, we saw no flame then.

VOICE: Great deal of smoke inside.

VOICE: Yes sir, there was.

PETRONE: In fact, what was your, who reported this. Who was there when the hatch opened?

VOICE: I was.

PETRONE: What did you report, sir?

VOICE: Yes sir, I reported to the test supervisor the hatches were off.

PETRONE: Do you remember your words, can you describe for us what you saw and reported? In terms of smoke and visibility.

VOICE: I have to be honest with you gentlemen, when the hatch came off and I looked in, I believe Mr. Page will I may have been evasive on it, I tried to give the impression of what I saw, and there was a catastrophe, but knowing that the communications circuits are rather open, I tried not to compromise things, too. I think I got this impression across, but.....

PETRONE: I was wondering, the question of smoke billowing out, did more smoke come, was there still a pressure?

VOICE: No, there was no pressure. There was smoke in there, yes sir.

PETRONE: Did it billow out?

VOICE: Not necessarily.....BILLOW....It was more a layer, laying in there. Which, as we got the hatch off,

VOICE: Did you have a good deal of light when you looked at that point?

VOICE: No sir, it is not, even under normal conditions, unless we have lights inside the spacecraft. You can't see that well....in there. I wish Mr. Petrone, I could answer you really on what I did say because I don't remember.

PETRONE: I did hear you, I wanted the board to hear what you said.

VOICE: I said I tried to keep from compromising the situation but get my impression across.

VOICE: Some of the words you said were "I can't see much but I can feel....

PETRONE: I recall that. Since it's not possible to describe what it looked like.

VOICE: ----------

VOICE: Gentlemen, I appreciate the opportunity to speak to you. May I say one thing? I can't commend my crew - by my crew I speak of not only my mechanics and technicians but my QC people and NASA QC people enough for what they did. The effort they made towards the whole thing. That's really the only thing I wanted to say about it, the effort was - it was fantastic - they're highly trained and they showed it.

DONALD O. BABBITT
NAA
FEBRUARY 3, 1967

QUESTION: Would you identify yourself by name and organization?

ANSWER: My name is Donald Babbitt and I work for North American Aviation.

QUESTION: Mr. Babbitt, you are probably aware of the critical nature of the information which you have previously furnished and will furnish to this panel, and we ask that you do not discuss your observations or viewpoints with anyone other than Apollo Review Board members or members of panels or other designated personnel. Mr. Babbitt, we have your written statement and we would like to ask that you supplement this with whatever comments you would like to make to expand as you feel appropriate, from the time that you first were aware of the situation and till you were in the White Room and were able to get to the hatch or approximately that period of time.

ANSWER: As the North American Pad Leader, I was located at the Pad Leader's desk which is approximately 90 degrees to the right of the command module hatch on the south side of the gantry level 8. The first word that I received of any problem started the incident, was over the headset on Channel Black 3, I heard the words, "Fire in - it was either in the command module or in here -" The term "fire" stuck out more than anything else. I, in turn, gave word to my mechanical lead man, Mr. Gleaves, to get the crew out, and had started a turn to the left to change my Operations Intercommunications Systems (OIS) box, or to get on the Public Address (PA) system to notify the blockhouse. At that time I never completed my turn because I was hit with a force of flame or pressure, both flame and pressure, that forced me toward the comm. box and down slightly.... I was hit by the force of pressure and heat. My immediate reaction was to get out of there, to evacuate the area, which I did do, I never completed my move to the comm. box. My moves were toward the umbilical arm and out of the umbilical arm, out to the umbilical tower itself, and upon reaching clear air outside, I came upon a telephone talker who was at the umbilical tower elevator standing by for the - which would have been the normal emergency egress test, and told him to notify the blockhouse that we had a bad fire on the level near the command module, and then as I also came onto the umbilical arm, I met three of my mechanics, Mr. Gleaves, Mr. Clemmons, and Mr. Hawkins. After notifying the telephone talker at the elevator on the umbilical tower, the three of us with a CO_2 bottle, proceeded back into the White Room to attempt what we could in removing the hatches. The time period as I believe it from the time that I heard the words "Fire" from the audio OIS system till we went back into the white room, I can only estimate to be between ten and twenty seconds. I have no way of knowing exactly how long this time would be. As we proceeded into the White Room, the smoke was extremely heavy. It appeared to me to be a heavy thick grey smoke, very billowing but very thick, we couldn't, as we went in the first time, see the hatches well to work, we worked as we could by feel on the boost cover hatch, we had to come out in approximately, I would say twice, to even finish the boost cover hatch and go back in after removing the boost cover hatch. The smoke started clearing some, but we - there was still a problem with staying in there. We made several trips in and out. We could see as we worked on the outer ablater hatch a little bit better. We could see where we were working, but

could not see the whole hatch itself, and knew the general area of the place for placing the tool for unlatching the hatch, and as we removed it, we got it outside the White Room and also, about that time, I had to change crews in working there, because Mr. Gleaves had come very close to passing out from smoke. I had to order him out. Mr. Hawkins was in not too good a shape and Mr. Clemmons was also the same way. As we came out with the outer ablater hatch I observed more people in the level A-8, the gantry level A-8, and I motioned for two more of them to come in and assist us in removing the hatch. When we went in for the inner hatch, we could see the hatch fairly well. We could see the whole hatch well enough to work on it, the handles on the hatch, on the outer side of it, were cool enough to hold on to but the face of the hatch itself was extremely hot. As we unlatched the inner hatch and we attempted to rotate it (you have to go down slightly and inward and rotate the hatch to take it all the way out) we were unable to do this, either due to the speed or confusion or obstructions, so I told them to drop the hatch straight down, meaning to put it down on the floor inside the command module near the wall so that we could clear it.

This terminates the statement of Mr. Babbitt.

DONALD O. BABBITT
NAA
FEBRUARY 8, 1967

QUESTION: This Statement consists of an additional statement furnished by Mr. Donald Babbitt who was Pad Leader on 34 during the incident. Mr. Babbitt, we've asked you to come in today to go into some detail with us on your observations when the inner hatch was finally removed. And, we are particularly concerned with the configuration of the flight crew members as well as you can recall.

ANSWER: When the inner hatch was first lowered, the only thing that I could observe was smoke inside. We could only feel the flight crew. We could not see them very well as I could tell. As the men working with me went out because they'd been in the smoke quite a while, I went back in, oh, approximately one minute or a minute and a half later; and all that I could observe was what appeared to be Mr. White laying on his back with his arms over his head, appeared to be reaching for the hatch or in something in that vicinity. I also observed what appeared to be Mr. Grissom laying with one of his arms through and appeared to be reaching in the direction of the hatch also. I went out again for a short bit and came back in maybe thirty seconds after that. I could see a little bit more. The smoke had cleared some more. All that I could really see was, oh maybe, to the waist of Mr. White. It appeared to me that they; I at first got the impression that they were off the seats; and then I got the impression that no they were on the seats. It appeared that their suits were shredded. I could see bare skin. No one, at any time while I was in the White Room or up on Level A-8, touched the crew other than as I say when we first lowered the hatch and could feel in there to see what was near the hatch, if we could feel the crew at all. One of the firemen stepped in for just a very short period of time. I directed him not to bring any fire apparatus into the White Room and he stepped back out again. As I say, no one else from the time that I was up there, went in the White Room but myself. The crew appeared to me to be in their normal, in-flight position. I could only see what

appeared to be Mr. Grissom's left arm reaching through Mr. White's arm. I could not see his body that well, but it had the appearance of being in its satisfactory or its normal position. I did not observe Mr. Chaffee because I was a little bit too far to the right of the hatch and could not see him. Mr. White appeared to me to be as I say, laying in his normal boost position. I could not tell whether his head rest was up or down. In fact, I couldn't even see his features because of the, what appeared the smoke or soot blackened face plate on his helmet. My observations are based on the looking from the inside of the White Room as close as I could to the hood without stepping on the hood of the White Room. The hatch was lowered as far inside as we could lower it, and it was still sticking above the lower edge of the hatch frame about three to four inches.

This concludes the statement given by Mr. Babbitt.

JAMES D. GLEAVES
NAA
JANUARY 29, 1967

PETRONE: Are you ready for Mr. Gleaves?

THOMPSON: Who is the next?

PETRONE: Mr. Gleaves, mechanical lead technician.

THOMPSON: Where was he?

PETRONE: He was on the platform. Mr. Babbitt reported he would be the man in charge of the technicians.

THOMPSON: Mr. Gleaves, we are asking you to appear before us and give us your account what transcribed and with the understanding, however, that the same restrictions continue regarding holding all this information under restraints. So with that I think perhaps you could just go ahead and tell us about where you were and what you saw and then there will be a lot of questions probably.

GLEAVES: The last I remember we were waiting at ten minutes and we were holding for this communication problem and there were about four of us in the vicinity of the umbilical waiting to jettison the umbilical when it came time for us to do so. And Don Babbitt, the pad leader, turned up the monitor a little louder and during this communication problem we sent most of our guys down for coffee break and on this communication deal if I remember correctly they went from black 3 to black 2 or from black 4 to black 3 and the instant Mr. Babbitt flipped a switch as far as I can tell I believe it was Mr. Chaffee that hollered that we have a fire in the spacecraft. And immediately we ran to the white room. And as we started up the swing arm there was a loud shoooooo. Like maybe Grissom or one of them had dumped the cabin pressure. And as we entered the white room there was a big flash and we knew something was fixing to happen and we started back out. As we did so, the spacecraft exploded and fire and debris covered the whole right side. It appeared that the flames and all the debris came out the right side of the spacecraft. In the area of the rendezvous windows in this area. And it knocked us up against the orange door, which I might say opens the wrong direction. We had trouble getting out due to the smoke and fire in this area. But once we were out in the swing arm everything settled down in just a few seconds. I returned to the white room and the smoke, heat and flames were so bad at the hatch area that we just couldn't stay near the hatch. So we wouldn't....

VOICE: The three of you?

GLEAVES: No sir, I returned. Right. Then in the meantime a gentleman named L. D. Reece found the oxygen masks and was handing out the oxygen masks we had trouble locating the strip of tape on the bottom because they were painted the same color as the connector. And several times, one, two, three or four of us returned without masks and stayed as long as we could, then finally Babbitt and myself entered the white room after the fire had been extinguished by Jerry Hawkins and on all fours I crawled. I found the tool to remove the ablative hatch. I removed the ablative hatch and I didn't have a mask on at this time

and I just couldn't take it no longer so I returned out and gave the tool to Jerry Hawkins, Steve Clements and L. D. Reece. And they removed the ablative hatch and L. D. Reece threw it out on level A8 and then these guys, also they had masks on, they removed the inter hatch and it was so hot they just let it drop down under the couch. So they come back out and I in return went in and kicked the inner hatch and it sort of fell down under the couch. I pushed but it was still hot and inside the spacecraft was black and filled full of smoke. You couldn't see anything at all. So I returned to A8 and out of the white room and got a flashlight and went back in and tried to see inside the spacecraft but the heat was too great and the smoke was too bad so we returned out on A8 and we continued to go back in. And as far as I can remember it took maybe 10 or 15 minutes for any fireman or any help to get to us up on the swing arm.

THOMPSON: Is there any point here? Could you draw a sketch indicating the sequences?

BAXTER: Before you draw it, do you remember who the first assistance was other than you three mechanics?

GLEAVES: Do you mean from below?

BAXTER: Right.

GLEAVES: We had two of our guys I don't remember their names. Willie Medcalf and some other guy came up to help us on the swing arm. From below on A8 there was a NASA QC and a couple of North American QC with fire extinguishers fighting the fire in and around the hatches as they were coming out. This being the command module in the white room here the pad leaders desk was here we had an electrician sitting here talking to an engineer and if I remember right we had an electrician sitting here at the lead man's desk, the umbilical being here I was standing in this area. We had a man here sitting in a chair monitoring the 401 unit which was supplying GO_2 to the OP-1 on sector 1 and another one of the mechanics was standing here. And when Babbitt turned up, Babbitt was sitting in this area when he turned up the monitor, and they hollered there is a fire in the spacecraft, I immediately run and went in the white room with Mr. Hawkins and a QC in the same vicinity as we went up these two stairs we heard a loud shooooo like maybe they had dumped cabin pressure. And once we entered the white room there was a tremendous flash and maybe the reflection come out of the hatch, I don't know. But there was a tremendous flash and then smoke and we started running in this direction and as we did from what I could tell the fire and debris just covered this whole area, just one big boom, one big blast.

VOICE: Which door did you get caught in?

GLEAVES: This is the orange door that the astronauts enter from the swing arm. This door opens in this direction, it knocked us against this door and we had to unpile to get out. In fact, the smoke and all was real bad at this time.

VOICE: Was there any noise associated with the flash?

GLEAVES: Yes sir, it exploded just like a big bang.

VOICE: Did you see anything of the hatch regard to the hatch or to the hatch window?

GLEAVES: Well, as I entered the hatch, I mean as I entered the white room we saw this flash smoke and we thought it was going to blow or something bad was going to happen so we came out of the white room. And the instant we came into this area which is about three feet maybe from this door it exploded.

PETRONE: You were outside the white room?

GLEAVES: That is right. With the flash and a lot of smoke and then we run.

PETRONE: Was this direction of this explosion in the white room?

GLEAVES: No sir, it was from this direction. The white room fits up in this area and this is all open to the umbilical.

PETRONE: You identify this as coming from the direction other than the white room?

GLEAVES: Yes sir, it come out between the white room and the umbilical I would say in the neighborhood where the windows are that is where it seemed to be. In that area.

THOMPSON: Can you indicate how far around that exterior shield goes, the outside shield, the boost protective cover, how far around that that comes rclative to your picture?

GLEAVES: Well, the night before we had installed the boost protective cover for this run on our shift. And the boost protective cover when maybe a foot on the other side of flyaway umbilical. It went from there around to the same location on the other side, which if I am not mistaken is CM8 the opening here and maybe 13 here was still open but it covered this area.

VOICE: Show me where the door is into the white room.

VOICE: Well, the door into the white room is a sliding door right here in two pieces.

VOICE: That is the one if you had continued to go into the hatch you would have gone?

VOICE: No sir, we were into the white room.

PETRONE: What was the position of the door?

VOICE: The door was in this position right here.

PETRONE: Open or closed?

VOICE: Well, half of it was closed and half of it was open. These sliding doors We kicked it open. Yes sir.

PETRONE: How many people got into the white room?

GLEAVES: Myself and one guy behind us.

PETRONE: You were fully in?

GLEAVES: Yes sir.

FAGET: Did you have a chance to look into the hatch? You were looking in what direction? At the time you felt this explosion.

WITNESS: When we saw the explosion, we were on our way back out because we had seen the flash, the smoke, and we knew something was fixing to happen and we left.

FAGET: You saw the flash, it came from around the seal, in the white room?

WITNESS: The reflection appeared to come out....the hatch. There is a glass in the hatch, yes, sir.

THOMPSON: As I understand it, the point you're making is that you did not see flame directly, but you saw the whole area light up, reflecting a flash, is that right?

WITNESS: Yes, sir.

MATHEWS: Where were you, where did you say you thought that....? You say you thought the flash came from the window?

WITNESS: On all three hatches. There's a little window on the boost protective cover on the inner hatch. On the outer hatch it gets a little larger, and the one inside is a little larger than it is. But there is a direct view from there into the SC.

FAGET: But you didn't get a chance to look in it?

WITNESS: No, sir.

FAGET: Is that where the light looked like where it came from in there, or from around the hatch?

WITNESS: It just appeared that there was a big flash, and I couldn't tell whether it came out through the window or whether it was coming from elsewhere. But there was the whole area lit up.

FAGET: The whole area?

WITNESS: Yes, sir.

FAGET: Inside the white room?

WITNESS: Yes, sir.

YARDLEY: That wasn't the violent....as several seconds later when you got out of....

WITNESS: No, sir, that's right. The big flash, as we went up the steps, like I say, we heard this whssh like maybe they'd dumped cabin pressure and a chance, maybe to try to get out. And, as we entered the white room, there was a big flash, and then we turned and started to run, and as we did, it blew, and there was an explosion and a tremendous amount of flame and smoke.

BORMAN: Then now did you to that door that was closed?

WITNESS: Yes, sir.

BORMAN: Then you ran out?

WITNESS: Yes, sir.

VOICE: Which door did you run out?

WITNESS: We ran out this door here, we....

VOICE: Then out it again, anyway though you regrouped and....

WITNESS: Yes, sir. That's the only door we could get out.

VOICE: If you went out the other door, you couldn't get out that way because that was really burning? Out there?

WITNESS: In this area? Oh yes, the Pad Leader's desk was on fire, and there was debris and all, laying here on fire.

VOICE: Tell us about this explosion. Try to think of some analogies to describe what is sounded like, now that you think about it, was it a crack, was it a whoom as if you threw a match into a barrel of gasoline, what was the character of the noise?

WITNESS: I would say it was like maybe when you were a kid and you put a fire-cracker in a tin can and it exploded and you had the lid on it tied down and it blew the whole side out of the tin can with the flames shooting out.

BORMAN: The noise was like that firecracker?

WITNESS: Yes, sir.

BORMAN: It was a loud bang, a loud explosion? Pardon?

WITNESS: Bang? Yes, sir.

BORMAN: Would you review for us again what you were saying about the men up near those oxygen bottles, what they were doing up there?

WITNESS: In this area?

VOICE: Yes.

WITNESS: We had two GO_2 bottles sitting here on a kluge which is a ZOO 025-401 unit which we were feeding in oxygen to sector 1, to OP 1 that fed the fuel cells. We had a man....

BORMAN: This was being fed at the time of the fire?

WITNESS: Yes, sir. We had a man here whose prime job was to monitor that to make sure there was 750 psi remaining on this gauge at all times. Anytime it got low, this man changed the bottle. Then we had another man standing here with myself at the umbilical....I believe he was in this area, he was actually closer to the S/C than myself, but he was between me and the white room, and we were standing there waiting to pull the lanyards to jettison the flyway umbilical when

our time came up which was T-10 and holding.

BARTON: This GO_2 was being fed where now? Does that go into the umbilical into the service module?

WITNESS: This GO_2? No sir, it goes into sector 1 down on the service module.

VOICE: Is this what they call the pad pressure on the tank?

PETRONE: No,_____

WITNESS: Yes sir, it's in a test port no, it's ah, in a servicing port, fill port, right.... into....

VOICE: Into the cryo oxygen....that's right.

PETRONE: This isn't a typical engineering way to describe it. Your two bottles - you draw your oxygen for this test, directly from a bottle, fed into the system rather than the cryogenic system you normally draw your oxygen from the cryogenic tank, liquid oxygen, in the service module, as it boils off you feed it into the command module, into the surge tank which has been described to you a few times, in earlier discussions, into the surge tank into a set of regulators as you go into the environmental control system, cabin, of the suit loop. So this, for this test, we had no cryogenics aboard. It gives you the oxygen pressure you need to feed the O2 into the cabin.

VOICE: And at the same time is one feeding oxygen to the fuel cells?

PETRONE: Fuel cells were not active. They were bypassed - they were on - you will find that the power system was not running. We had other things. The fuel cells were not active.

THOMPSON: Well, I think it will be very important, in that, to know where they were bypassed because there are a number of parts of the system brought in even though the oxygen is being fed in from....

PETRONE: I am not sure that Mr. Gleaves is the man to give you the details on the configuration, but we on the panel, Mr. Williams, is on....the final configuration of the bottles, the loops and where they're tied in.

WILLIAMS: This shows the 6th deck. The platform and the steps.

BAXTER: That's a point I made earlier, I wanted to be sure.

VOICE: Well, let me come back to....you ran out the door, you moved when Abbott came out the door or did you not wait for them? You went back by yourself?

WITNESS: Well, when Babbitt came out, he was screaming for someone to please get them out of there. And, we returned, not only myself, I returned first, but I came back out and at that time I was given a fire extinguisher, and I passed it to Jerry Hawkins, and he, in turn, went in and emptied it to extinguish the fire around the hatch. But, there was five of us out here, and we each took turns going in and out trying to do something.

VOICE: Did you have a gas mask?

WITNESS: At some times I had a gas mask, yes. Other times, no.

FAGET: At any time that you went in there, did you notice flames inside....

WITNESS: Inside the bird?

FAGET: Through the window, yes.

WITNESS: No sir, the smoke was so great that you just couldn't see anything. But there was definitely flames coming up outside like it was coming up from the next level around the hatch.

THOMPSON: I think you've answered this question, but I want to be sure I understand it. The point where you were just prior to your receiving a first indication that there was anything unusual about the whole thing, what was the first indication that you had that there was anything wrong? Where were you?

WITNESS: I was standing in the area of the umbilical.

THOMPSON: And what way were you looking at that time? Do you know which way you were facing?

WITNESS: Yes, I was talking to the pad leader, or I had been talking to the pad leader.

THOMPSON: And what was the first event that gave you an indication that there was something wrong?

WITNESS: When Mr. Babbitt switched on the communication. Like I say, it was either from Black 3 to Black 2 or from Black 4 to Black 3, I don't really remember which it was, but the minute he switched, it sounded as if it was Mr. Chaffee hollered, "We have a fire in the SC." And at that time, we all run in this direction toward the white room.

VOICE: Why did they switch it?

VOICE: They were having a communication problem.

VOICE: Well, why did they switch it at that particular time?

VOICE: Because as he monitors the different channels on his head set, when he follows the test, and when the blockhouse who it is says go from Black 3 to Black 2, he immediately switches.

VOICE: We assume that he switched over to this because the blockhouse had instructed him to.

VOICE: Well, because everyone on this channel was switching.

VOICE: Right, before they switched, they were talking to Mr. Grissom, and Mr. Grissom they told him he was very garbled; they were talking to Mr. White and he said he was a little better than Gus, but he was still garbled, and Mr. Chaffee, they told him that he was the best of all. That they could understand him more

plainly than any of the others. And when they asked them all to switch and that's when they started flipping channels, and that's when I'd say it was Mr. Chaffee hollered that we have a fire in the SC.

VOICE: How much switching action was both in the capsule and on the loop?

VOICE: Everyone on the loop everywhere was changing switches.

PETRONE: Do you know what the time was, of the switching?

WITNESS: No, I believe it was in the neighborhood of 6:30.

PETRONE: No, I meant were we switching within ten seconds.

WITNESS: We were at -10 minutes and holding for this communication problem.

PETRONE: Yes, I know that but, in relation to the fire or the flash or the glitch of the communications when was the last time there was direction to do switching?

WITNESS: At this, when they switched from Black 3 to Black 2 and someone screamed - Mr. Chaffee I think screamed, we have a fire in the SC, immediately I run and Mr. Babbitt throwed his headset down and was coming behind us at the same time.

DEBUS: Can you describe what Grissom said, it was garbled, could that have been a call of fire or something? Was that around the same time?

WITNESS: Pardon me?

DEBUS: You said that as you checked communications that Gus Grissom said something, that it was garbled.

WITNESS: Well, they were talking to them.

DEBUS: Right.

WITNESS: The astronauts. And they were checking this communications problem.

DEBUS: And when was it?

WITNESS: It was just prior to switching from Black 3 to Black 2 or from Black 4 to Black 3, whichever it was.

DEBUS: And then was that after the word fire?

WITNESS: That was before the word fire. A matter of maybe 30 seconds or a minute.

VOICE: You heard this through your headset?

WITNESS: No sir, I heard it through the monitor. I wasn't on the squawk box.

THOMPSON: Well, I think there's a point here that has been established and perhaps he should renew it. As I understand it the hold was on account of the communications problem.

WITNESS: That is affirmative, yes sir.

THOMPSON: It was on the ten-minute hold? Because of the communications problem? And then, is it correct that some change there decided that everybody switch to another channel because of that problem?

WITNESS: Right, they were switching trying to determine what the problem was. Whether it was inside the spacecraft or the blockhouse or just where.

THOMPSON: The communications problem.....

VOICE: They were switching around from different things.

BORMAN: Internal switching, internal SC controls.

WITNESS: Right.

PETRONE: Dr. Thompson, I think on this....

VOICE: They had done this prior on the C-band or S-band or something else.

PETRONE: You can get a communication engineer to relate how they, what they do in the SC vs. on the ground. Remember, we said we were on S-band communications. And, this configuration is very important, what channel they were on, what was being over the air, whether you were OIS or operations intercom system. What switching is done on the ground vs. what's in the SC. I think that's most important.

THOMPSON: Well, there's one point I would like to be clear on and that is the duration or the previous history of this problem, how long prior to this final switchover had that problem existed. Had it been, had it existed for two hours?

PETRONE: Yesterday, in our summary, when the astronauts in their suits got into their suits got into their SC, it was the first time you could make a communications check with the actual speaker system and so on. And, there had been a series of difficulties in being able to hear. Either due to the air rushing by the mike or due to other difficulties, there had been a series of let's go VHF, go hardline, OIS, or S-band, so this had been the entire time they were in there, at various times there were switches in communications being made.

THOMPSON: Well, in other words, there was nothing so unusual about having a problem in communications. Is that the point?

PETRONE: Yes, there is nothing unusual....

THOMPSON: We will develop in a subsequent.

PETRONE: At that particular time, that was nothing unique?

THOMPSON: We will develop the actual timing of this thing I think in subsequent review of the information.

VOICE: I guess it is a fair statement to make that the channel switching that this man did and the other man did, there's no physical connection between this man

between those systems and the spacecraft.

THOMPSON: Well, we will.

VOICE: Except they were switching at the same time.

VOICE: He said they were switching at the same time. Now that's the thing I think we'll have to, I don't think you would even know they were switching at the same time.

JEFF: I think we have apparently got just one point that seems somewhat important and that is to say whether because of the switching of communications one didn't hear the word "fire" for the first time.

VOICE: Yes, I think that will show up later.

THOMPSON: We will have a review of events, recorded events. It will clarify that to the extent it can be clarified. But Gleaves is not the man in the position to give us much. Information on that as far as I can see except to establish the purpose of the hold and the fact that it's been a problem.

VOICE: You were monitoring the crew panel....all this time?

PETRONE: Yes. I was on 1, 2, 3, and 4. I was on all the channels.

MATHEWS: Any garbled conversations that you couldn't identify the nature of the conversation?

PETRONE: No.

THOMPSON: Let's get back to any further questions that you want to ask now before we let Mr. Gleaves go.

VOICE: Mr. Gleaves: Did you go out the door before Mr. Babbitt?

GLEAVES: Yes sir.

VOICE: You did?

GLEAVES: Yes sir.

GLEAVES: In fact, Mr. Hawkins was first and I was behind him and who was behind me, I don't really remember. But I know he and I were the first two out this door.

BORMAN: I was going to ask: Can you give us your estimate of time between when you first heard the fire call and went into the White Room? How much time do you think that took? And between the time you decided to exit the White Room before this big explosion.

GLEAVES: I would say it was just a matter of just a few seconds.

BORMAN: There was two periods of a few seconds each then you would say?

GLEAVES: No, I would say from the time he hollered "there is a fire in the spacecraft"

and we started running until the time we headed for the door, was just a matter of seconds.

BORMAN: Yes, well, I was trying to break down the two periods; one you went in the White Room and then you saw this flash outside and decided we better get out of there.

GLEAVES: And we immediately, there was no hesitation, we immediately turned and ran out. In fact, I almost ran over Mr. Hawkins.

BORMAN: The first time was how many seconds would you guess to run that distance to get into the White Room before you decided to switch.

GLEAVES: Just a couple maybe three.

BORMAN: And then you started running out and got about to the door and this other thing happened....the Bang....Would you say that was "2-3" seconds? Was it almost that long between the flash and the other "boom"? Was it about as long as it took you to get out of there?

GLEAVES: No. When it flashed, then we remember smoke, then immediately it blew.

BORMAN: So there wasn't much time to....

VOICE: But he got all the way from the White Room out to the orange door in that length of time.

GLEAVES: No, we got almost to the white door which is maybe as far as here to the mike. And it's not that great a distance from there.

VOICE: You go through the white room door?

GLEAVES: Right.

FAGET: From the time you heard fire until the time you heard the bang.

GLEAVES: Pardon....

FAGET: From the time you heard fire until the time you heard the relief valve.

GLEAVES: I say it couldn't have been over 10 seconds at the most....or 15.

YARDLEY: You mean, it might have been on order of 10-15 seconds? But in the other period it was only one or two seconds.

GLEAVES: That's right.

BAXTER: Sir, back to the....we, I say we....there exists procedures for emergency egress. Pad egress. I know you can't think of everything, but do you have a procedure that would come close to meeting this kind of thing and did you or were you just reacting spontaneously or did you have pad egress procedure you were trying to do?

GLEAVES: No sir, we are well aware of how to get these hatches off. Then he hollered

"fire" and all we could think about was to get the hatches off.

BAXTER: Could you have used more help?

GLEAVES: No sir.

BAXTER: You couldn't physically get people in there?

GLEAVES: That's right. After the explosion we re-entered the White Room and the fire was too great and the heat and the smoke was too intense....you could not breathe in there. After we could not breathe....

VOICE: I believe they had more help during that period that they would have under a hazard egress condition.

BORMAN: I think there is one thing of significance here your job was in 10 minutes to get that hatch off.

PETRONE: No.

BORMAN: Were they going to pull the hatch?

PETRONE: We were going to plus three.

GLEAVES: The astronauts were going to pull it from inside and we were to assist them on the outside of catching the hatches as they came out.

PETRONE: In 10 minutes he was going to pull the umbilical when we picked up the count. The egress would have been practable at the end of the count planned at plus three hours.

VOICE: What were the words from the crew the first words you heard?

GLEAVES: When Babbitt switched channels, the first thing we heard was that one of them hollered, "We have a fire in the spacecraft".

VOICE: It wasn't just fire?

GLEAVES: No sir. "We have a fire in the spacecraft."

VOICE: That was actually the sentence?

GLEAVES: He may have hollered the word "fire" before Babbitt switched. And then he did say, "We have a fire in the spacecraft."

THOMPSON: You were not wearing a headset?

GLEAVES: No sir. I was listening to the monitor.

THOMPSON: Any further questions?

THOMPSON: Well, thank you, Mr. Gleaves.

JEFFS: Mr. Chairman. I know it is slight side point here to this. It came up. We talked about it. I know my people have been trying to work with that garbled transmission too. To see if we can get some information out of it. I presume the data team is also working with that and you will hear a report on that, later on. There might be something there we should try and see if we can't extract.

LEWIS CURATOLO
NAA
FEBRUARY 22, 1967

My assignment as Pad Leader on Spacecraft 012, I was responsible for 1st shift activities concerning Test and Operation of the Spacecraft and Ground Support Equipment at Launch Complex 34. The scheduled activity for January 27, 1967, was the performance of OCP-0021 (Plugs Out Test). Chronologically, to the best of my knowledge the events of the day were as follows:
Power was applied to the Spacecraft and Ground Support Equipment at approximately 0813. Normal power up procedures were followed. System power up began almost immediately after the Spacecraft, Ground Support Equipment power up. No major discrepancies were noted during the power up sequence.

During the power up portion of the procedure we experienced many OIS communications problems. At approximately 1300 I notified the Test Conductor and Test Project Engineer that we were ready to perform Crew ingress. The Suit Technician and the Spacecraft Technician performed the pre-ingress layout of the cockpit and couches. This procedure consists of laying out the pilots seat and shoulder harnesses, and routing of the 0_2 umbilical hoses. I instructed the Spacecraft Technician to remove all foreign objects and materials from the Spacecraft interior. At this time the Technician handed out a number of plastic bags and some foam rubber mats, which we normally use for protecting wire bundles and Spacecraft honeycomb structure. During the pilots ingress I handed the Spacecraft Technician two pieces of foam rubber wrapped in velostat which were to be used for protection of the inner hatch during the scheduled emergency egress procedure.

After completion of the Crew ingress we proceeded with Hatch closeout, and Cabin purge, as directed by the Environmental Control System engineer and Test Project Engineer. During Cabin purge we detected a strong pungent odor which smelled like MEK. We reported this to the Environmental Control System engineer, and he directed us to do another purge because the 0_2 content inside the cabin was only 75%. We did another purge and pressurization and obtained a 92% reading on the analyzer. At this time we were directed to proceed with outer hatch and Boost Protective Cover closeout. We installed the outer crew hatch and started with the Boost Protective Cover installation but experienced some difficulty in getting the Boost Protective Cover to lock in, so I notified the Test Project Engineer and asked for an Interim Discrepancy Report. The Boost Protective Cover was left unlatched and we were instructed by the Test Supervisor and Test Conductor to clear the White Room. I followed the Test Conductor's instructions and at this point (1730) the 2nd shift Pad Leader (Don Babbitt) relieved me. After giving Mr. Babbitt a turnover on the next sequence of events I left the service structure and positioned myself in the Operations Trailer to monitor the "Liftoff" sequence of the procedure. This was my location at the time of the accident. Approximately 5 to 10 minutes after the accident I was instructed by the CVTS to go back to the A-8 level of the service structure to relieve Mr. Babbitt. Upon re-entering the A-8 level I observed that some areas of the Spacecraft exterior were still smoldering, and the Crew Hatch had been removed. I instructed the firemen to remove the shear panel from the White Room to allow the smoke to dissipate and allow the interior of the Spacecraft to cool. I entered the White Room and observed that the flood lights on the Crew Couches were still illuminated and the main display Console lights were still lit. I reported this condition to the Control Room and the blockhouse. I observed that the body of the Senior Pilot was wedged between the Crew Couches and the hatch bulkhead; the Command Pilot was positioned in the center couch with his body partially hanging over the center couch. The Pilot was in a reclining position in the Pilot's Couch.

I observed that the Command Pilot's leg pans were in the rest position, the Senior Pilot's leg pans were in the boost position, and the Pilot's leg pans were in the full down position.

I was relieved by Mr. J. Murphy at approximately 2100.

/s/ L. Curatolo

L.D. REECE

JANUARY 27 – 28, 1967

At the instant of first indication of a problem, I was on station at the cut-out in service tower directly above the fly away umbilical. I was standing on the side of the cut-out nearest the pad leader's desk. When the 10 minute hold was announced, I had moved around only slightly and had stayed pretty much in this area listening to the communications problem being discussed. I believe communications requested a test count from one of the crew so he could "Investigate Cross Reception Between Black 2 and Black 3."

A very few seconds later a seemingly calm voice said, "There is a fire in the C/M" or "There is an electrical fire in the C/M."

Turned toward the C/M intending to go into White Room and assist removing hatch. Immediate (1-2 sec.) there was a sheet of flame shooting out from C/M 17 access. Another 1 sec. I was inside White Room with one or two other persons, I don't know what happened the next 1-2 seconds, as I became scared and turned and ran across swing arm to elevator where several people were yelling and screaming that there was a fire and to help us.

A couple of seconds later some one got their wits and yelled, "Fire Extinguisher." Some else yelled, "Gas Masks." I got the extinguisher from hook west side of No.22 elevator door and carried it back to step down and handed it to Gleaves. Turned back got a couple of masks; put one on; gave one to someone and went back to White Room to open hatch. Smoke was so thick, very black, could not find tool or anything else. Went to level A-8, had nothing to use. Went back to swing arm outside door, then returned to White Room two more times trying to open hatch and leading Gleaves out as his mask didn't work and was blinded and choking. Last time inside Gleaves located tool, got B.P.C. cover off or partially off, left again, and I stayed and helped Hawkins remove outer hatch. I think I got scared again as I returned to swing arm, then went back to find hatch (inner) finally being pushed in. I could see nothing at all, but finally made out the left hand head floodlight very faintly. I was very highly excited at this time, and thinking I heard crew I leaned in as far as I could feeling around center couch. I felt no one, but still convinced I had heard them, I took mask off yelled several times to crew, felt around, then left mask on center couch and returned to swing arm.

I tried several gas masks after this, but all were broken or would not work. In meantime several men had been applying extinguishers, so as area got smoke cleared out, I gathered all Inspection Documents few at time and put on southeast elevator and called Inspection Trailer to meet me at ground level.

At critical time between hearing crew announce fire and going out swing arm, I just am not sure how many explosions occurred, possibly two.

/s/ L. D. Reece

RICHARD A. HAGAR
NAA
JANUARY 27, 1967

REPORT ON 012
I was monitoring the OCP on level 8 at the plus axis with Dale Hickenbottom. Dale told me there was a fire in the command module. I started for the White Room and had reached the +Z axis when I heard two loud pops. I stopped momentarily and at that time fire shot out of the command module at the +Y and -Y axis. The time elapsed couldn't have been more than a couple of seconds.

/s/ R. A. Hagar

JANUARY 27, 1967

SECOND STATEMENT
While monitoring the OCP I heard the report given "fire in the spacecraft." I was on level 8 at the +Y axis. I started for the White Room and as I reached the +Z axis I heard two loud pops, at this time fire blew out of -Y and +Y access panels. I went out on one of the elevator arms and at this time all of level 8 was on fire. I then proceeded to leave the tower.

/s/ Richard A. Hagar

JANUARY 28, 1967

Everything relating to this AS 204 plugs out test is classified in accordance with the mission failure plan. My name is Richard A. Hagar, my organization is North American Aviation, my position is spacecraft electrician, my supervisor is Carl Black; and my station call sign is SCO. On January 27, 1967, I was sitting at the -Y axis of the command module monitoring the OCP with Dale Hickenbottom, QC with North American. At approximately 6:30 there was a broadcast on the net that there was a fire in the command module. At this time I left my position - I was monitoring here, and walked to the +Z axis going towards the White Room. At this time I noted two loud pops, two loud bangs, and at this time fire shot out of +Z and the +Y and the -Y axis. Quite a bit of flame to be exact. At this time, noting the flame coming out I turned and went out onto one of the elevated platforms; however, I left the gantry. At this time, I reported to the tech trailer and reported to my supervisor, Carl Black, and stood by the trailer until approximately 11:30 when we went to the operations trailer for a short meeting where we wrote down our recollections of the OCP and the test and what had happened on the level, and then we were to come to the War Room for another meeting. At this time, Mr. Pearce asked Dick Bachand and myself to go into the command module after they had removed the astronauts and check through the switch positions and so forth to see if there was anything unusual and maybe out of place. At this time upon entering we went to the OCP up and around where they were testing at T-minus 15 minutes. Up to this point everything seemed good. The two main things that we did note, panel 150, the pyro panel, was out of position; it is normally mounted on the forward equipment bay in the right hand corner and it was approximately 8 inches forward of the equipment bay sitting on two brackets. It had not, from all appearances blown out since the mounting screws were laying right in front of it in a neat pile, and if they had of blown, why they would have stripped the screws and probably blown around the command module there. There were three circuit breakers engaged, they were Batt A power entry, Batt B power entry and Batt C power entry. The other circuit breakers on the panel were open. Starting after T-minus 15 minutes where we

would have picked up the count, which is T-plus 36, the only two things we checked into the sequence and fuel cell 3 on panel 18, fuel cell 3 to bus A was in the center position, and fuel cells 1 to bus B was in the center position. The other fuel cell switches on the busses were off, and you first step in sequence page 6, I don't recall the paragraph right now, but were to throw these to "ON" momentarily. It looked like this might have been done ahead of time, I don't know what bearing offhand, this is done but going on 9206 sequence 06 the battery relays busses were open and on the commander's panel 8, which would have been a few of his call-outs. The rate gyros were in the normal position and it looked generally pretty good. The test light or the abort light was hanging about half way out. It looked like there had been some flames shooting out beside it. But I believe that does it generally. This is all I have to relate concerning this test.

RICHARD A. BACHAND
NAA
JANUARY 27, 1967

At the time of this incident, I was standing about 10 feet from the outside between the +Z and +Y axis, level 8A, facing away from the C/M. When I heard the astronaut give the alarm over the headset of "Fire in here," I turned to look at the C/M. I heard a low burp, then a large whoosh, then a wall of flame from the side of the C/M jumped from floor-to-ceiling and a pressure and heat blast pushed me backward. I dropped my headset, turned, and ran to the exit on the northwest corner. I called the elevator which arrived in about 30 seconds and went down in it. This is all I remember of the incident at this time.

/s/ Richard L. Bachand
January 27, 1967

JANUARY 29, 1967

Everything related to this AS-204 plugs-out test is classified in accordance with the mission failure plan. My name is Richard L. Bachand, Tech Support Crew. My position is Spacecraft Mechanic Senior Electronic. My supervisor is Carl Black. My station call sign is SCET, which is the Command Module electronic tech. On January 27, 1967, I was part of the before-mentioned test. I was on the adjustable 8 level, Command Module level, between the +Y and +Z axes, approximately 10 feet from the Command Module. I was monitoring the command channel and active on green ten with MRCS (station call sign) at the time the alarm was given by the astronaut that there was a fire in the Command Module. I was facing away from the Command Module, and immediately I turned and looked at the Spacecraft; and I heard a small burp or thump which I didn't know exactly what it was at the time. I have been told since then that several others heard it and again find it is the Command Module pressure relief valve. Immediately following this, I'd say less than a second later, there was a large "woosh" and a wall of flame rose up between me and the Command Module. I'd say it was from floor-to-ceiling. Everywhere I looked there was flame. I dropped the headset, turned around, and ran for the exit which was on the northwest corner. I got out through the door, which locked behind me, and I'd say less than 30 seconds later, the elevator got there, and I went down on the elevator. This is all I have to relate concerning this test. My name is Richard Bachand.

STEPHEN B. CLEMMONS
NAA
JANUARY 27, 1967

1. First attempt to enter C/M via white room.
2. Went to get gas mask
3. Second attempt to enter C/M. Helped to remove B.P.C. access door and outer hatch to C/M.
4. Went to get another gas mask.
5. Helped to remove inner hatch.

JANUARY 27, 1967

After hearing the words, there's a fire in here, I turned toward the S/C and saw a white glow coming from the edge of the boost protective cover at the next opening as diagram shows.

Don Babbitt yelled, there's a fire inside and I ran toward the white room. Babbitt, Gleaves, Hawkins, L. D. Reece and myself tried to get in but by this time (10 seconds approx.) extreme heat and flames drove us out of the swing arm. We tried to find some gas masks but there was a little time required finding any. When we finally found some, one mask came off the hose and two could not be opened on port at bottom. By this time, the flames and smoke had subsided so that we could attempt to open the hatch. We finally removed the outer hatch and outer C/M cover, after some difficulty because of a binding condition on B.P.C. By this time our masks had been used up. All this occurred within 4 minutes or less. With fresh masks, we attempted to remove the inner cover. On opening the last hatch we were driven back by the heat and fumes/smoke. I saw no fire and the small florescent lights on the seat head rest area was still burning. Before leaving, I stuck my hand inside but I could feel nothing or see anything because of smoke/heat. I did not hear any sounds emitting from inside. By this time my gas mask was used up and the fireman arrived. All this took place no longer than six minutes after it started, or so it seems.

Then joined the other personnel putting the fire or remains out. There were not too many significant items except when it started. There seemed to be a loud venting of gases, then ignition which sounded like a gas jet being ignited. There was no loud explosion and the fire seem to come from all directions exiting from the command module access ports.

/s/ Stephen B. Clemmons

JAMES EARL CROMER
PAA
JANUARY 27, 1967

1215 - I went on station for the 220 foot level of umbilical tower for egress mode.

1245 - This was about the time the astronauts arrived. From this time until accident it was routine test on elevator which was in egress mode all this time.

About 1530 - During this time Bendix crew on 220 foot level changed crews on the unit on 220 foot level. I obtained permission from French Johnson for them to ride elevator. I was in Blue 3 on the head set and was monitoring Black 3 at this time. There was two sampling men which came up and took samples in the 8th level and then returned to the ground.

Accident - At the time of the accident, I was on 220 foot level standing beside elevator looking at White Room, there was a flash of fire which came out of the White Room door, the concussion blew the side doors open, personnel left 8th level onto the catwalks to get their breath. Personnel came from White Room and told me to tell someone that the spacecraft was on fire which I repeated over Blue 3. I asked for gas mask to be put on elevator 1 to the 8th level catwalks. I also reported the 8th level was on fire. I assisted the personnel on the 220 foot level with gas masks and the one fire bottle on 200 foot level. I asked that the elevator stay at 220 foot level which it did for quite some time. Personnel used all fire bottles that could be found. Personnel made repeated trips into the capsule, but had to return for air because of the gas and smoke. One made repeated trips in until one fellows put him and theirselves on elevator which I sent to the bottom to the ambulance. The elevator returned to the 220 foot level for stay-by. From this time on Harry and I controlled the elevator from top to bottom for personnel that was permitted to use the elevator. We stayed in this configuration until we secured the elevator at about 9:50 p.m. (the egress) at the bottom level. Which then we went to elevator 4 and put it on express from the 1st, 6th, and 8th levels.

JOSEPH H. PLEASANT
NAA
FEBRUARY 7, 1967

On Friday, January 27, 1967, at approximately 1830 hours, I was on Level A-8 of the structure standing near the stairs to the White Room. At that time, someone yelled, there's a fire in the Spacecraft; and about that second, there was a muffled explosion and fire shot out from around the bottom of the Command Module in several places. The Level immediately filled with smoke and some visible flame about the Spacecraft. The CO_2 bottles on that Level were being used by personnel to fight the fire. CO_2 bottles were brought from another levels to help. Every attempt was made to open the hatch for the astronauts' escape. There were no elevators available, so I climbed from Level 8 to Level 6 over the cat walks and then to A-5 where I went into a Douglas room and called the Fire Department; but they had already been notified.

At that time, someone was paging for the Tech Trailer to come up on headset. This was made several times. I went to the Tech Trailer by way of the stairs and reported in on headset but no answer. I immediately started with a head count of the GSE personnel and notifying higher level of supervision. When the first-aid trucks arrived, I sent five GSE technicians to the Dispensary which had been on station or or near Level A-8. Names as follows: B. Belt, A. Journey, J. McConnell, W. Wingfield and W. Schneider.

/s/ J. H. Pleasant

BRUCE W. DAVIS
NAA
JANUARY 27, 1967

I was standing at the umbilical on the adjustable 8 level at the time of the fire. Just previous to the fire I heard that the astronauts were having trouble with communications. They were instructed to change to Black 2 channel. At this time I heard someone say, "There is a fire in the cockpit." I turned around and after about one second I saw flames within the two open access panels in the command module near the umbilical. Someone said, "She's going to blow." Before I could turn around I heard a whoosh and flames shot out of the access panels. Someone shouted, "Clear the level." As I turned around and ran toward the south west door I felt a large breeze and felt the flames. Several of us got out the door and turned to look back through the window and all we could see was flames. Someone said the Launch Escape System is going to blow and some guys climbed down the beams to the next level. We looked back and someone said, "There's nobody alive in there." The elevator finally came up and we got on it and rode down to the bottom floor.

/s/ Bruce W. Davis

FRIEND D. HICKENBOTTOM
NAA
JANUARY 27, 1967

I was on level A-8, on a head set, monitoring the test, located on the south side of the tower, near the Quality Control desk.

I was facing east when I heard a report on the headset that there was a fire in the Command Module, this report I believe came from Chaffee, at that instant I looked northeast and saw a spurt of flame come from the area under the white room and heart a report that sounded like a small explosion followed by a louder, more distinct noise, and flames shot out of the openings of the Command Module.

At that time I left the headset and went to the phone which was located on the same level at the southeast corner of A-8.

I reported a fire in the Command Module on Complex 34, Level A-8 to the PAA Fire Department and waited for the indication that they understood me, which they did.

At this time I walked to the elevator on the southeast corner, called it and returned to the door where a fire extinguisher was, I took it and started to fight at the south side of the Command Module and continued until the firemen arrived.

Time was approximately 1820, crew reported fire, Fire Department called on way to get fire extinguisher, elevator arrived, (Rogers, NASA Quality Control, covered me with smock), ran out of extinguisher, flames are at all ports, up to 5 feet high near pad leader desk. Documents caught fire from objects blowing out near Pad Leader's desk. Got new fire extinguisher, flames are high again, flames secured on area near Quality Control desk, partially secured by the Pad Leader's desk. Fire Department arrived and finished the flames in the area near Pad Leader's desk. The area near the umbilical island was hard to put out.

The area had such dense smoke that it was not possible to determine where the major flame area was, but it was definitely on the north side near the umbilical and on around near the hatch. Flames were at times very near the base of the Launch Escape System (LES).

Hagar and I were discussing the jackets and other non-test related items, the count was at about 10 and we were having communications problems. This communications problem was **not** of such magnitude that it kept me from hearing the report from the astronaut that there was a fire in the cockpit.

/s/ Dale Hickenbottom

JERRY W. HAWKINS
NAA
JANUARY 27, 1967

I was located at the swing arm at the passway from level A8. Someone yelled fire, and I saw flame billow from the Spacecraft toward the pad leader's desk. The next thing, fire was showing up in many places; people were coming toward the swing arm; the area was rapidly filled with smoke and fire. We opened the swing arm exit and went to the umbilical tower to get gas masks and return to the white room, but fire and smoke was blinding. We ran back to the umbilical tower and found a fire extinguisher, returned to white room and put the fire out around the hatch area. My hose came off my gas mask, and I had to return to the swing arm. Gleaves, my lead man, came out a little later, how long I'm not sure, choking, and handed me his mask. He said "I got the B.P.C. hatch, get the others." I returned, and Clemmons and I removed the outer and inner hatches. We couldn't see inside, but leaned in and felt for the crew. The heat was tremendous, and I got ashes or soot on my hands, and all objects were too hot to touch. I was getting smoke in my mask at this time and left momentarily for fresh air and a flashlight - 10 - 15 seconds - returned to hatch with lite and there was nothing but what appeared to be a blanket of ashes across the crew couches, and no one could be made out anywhere in the C/M. The firemen arrived, and I left the white room to inform pad leader of condition inside C/M. Then helped Gleaves to umbilical elevator down and to medics.

/s/ Jerry W. Hawkins

W. DONALD BROWN

NAA

JANUARY 28, 1967

Was at Quality Control desk when Command Module access panel 10 seemed to ignite as a minor type explosion. During this period 2 wooshes (loud) of escaping gas were heard. The area L-8 became immediately full of smoke, grey. I went to L-7, top of Service Module (S/M), Sector I and II, were burning. Also quads A and B were on fire. Fire was coming from inside Sector I access from below the access (much grey smoke). I returned to Level-8 from Level-5 and smoke was still coming from under and left-hand side of BPC. Upon returning from L-6 with extinguisher was told to leave area. I do not recall any times (clock) of these events.

/s/ W. D. Brown

JESSIE L. OWENS

NAA

JANUARY 27, 1967

Accident Report - Launch Complex 34, Level A-8
Time: Approximately 6:30

My position was near the Pad Leader's desk (by the water cooler). Garbled communications, but intelligible enough to hear switch to Black 4 or Black 2 - then fire in Command Module - I turned, looked at the Pad Leader, looked back at the Command Module at the White Room P hatch area, heard what sounded like the cabin relief valve open and high velocity gas escaping. Within two seconds (I estimate) high velocity gas came out the access panel in the +Y direction from the G and N (Guidance and Navigation System). Immediately this gas burst into flame somewhat like lighting an acetylene torch. I turned to go to the White Room at the above noted instant but was met by a flame wall. I turned to exit through the northeast door to the elevator and my hair was singed in the back under my white cap (evidence of the height of the flame). I exited to the crosswalk but no elevator was available - turned back to into the A-8 area but flame and door being latching type from inside, I couldn't get in. I climbed out on the structure and down the beams to the stair area, went down the stairs and to the nearest trailer and phoned C. C. Stephens.

NOTE: The smoke I breathed was foul and of an irritating nature. The flame was orange.

/s/ Jessie Owens, NAA Supt.

ROBERT C. HEDLUND
NAA
JANUARY 27–28, 1967

I was standing on the +Z+Y area watching Davis checking quick disconnects when I heard over the Pad Leader's speaker, "Fire in the cockpit," turned to look at the Pad Leader when I heard a whoosh. Looked at C/M, saw small flames coming from access hatches. Started away from C/M when a large whoosh accompanied by extreme heat and flame shot out of the access hatches. Fled to the southwest exit where a pile up occurred over a K bottle (oxygen storage) in the way. Finally everyone got out on platform where we were trapped until elevator arrived. The door to level A8 locks when closed. When elevator finally arrived, looked back and could see flames through A8 access door window.

/s/ Robert C. Hedlund

261-103 O - 67 - 7

JOHN E. MARKOVICH
NASA
JANUARY 27, 1967

I was on duty on the 1530 to 2400 shift on January 27, 1967, as a NASA insepector on Launch Complex 34 from the KD-22 (Quality Surveillance Division) office located at the Kennedy Space Center.

OCP K-0021 was in the process of being accomplished and approximately 1830 hours I was standing at a point several feet and to the northwest of the command module of spacecraft 012 on the A-8 level of Launch Complex 34.

At approximately 1830 hours, I was standing facing the spacecraft when I heard a muffled explosion. I then saw a huge flash fire shoot out from a service port at +z axis of the spacecraft. Fire quickly encircled the base of the spacecraft and between the spacecraft and the service module. Almost instantaneous the fire enveloped the complete spacecraft and extended upwards past the forward heat shield by about four feet.

There was a stampede of personnel at this time towards the exits to the elevators. I was knocked towards the northwest door and knocked down by several persons who had rushed for the door. I finally got back to my feet outside the door and walked to the elevator entrance door.

Someone had summoned the elevator and after about two minutes the elevator arrived. We all then entered the elevator for ground level. If memory serves me correctly there was about twenty people on the A-8 level and about six of us on the elevator. After about 30 minutes PAA ambulances took about 8 of us to the PAA Dispensary for treatment.

/s/ John E. Markovich

JOSEPH L. STOECKL
NASA
JANUARY 27, 1967

At approximately 1833 on Friday, 1-27-67, I was standing in the southwest corner of the service structure on level A-8 reading the NASA Quality Control tie-in log. I had my back to the spacecraft. When I heard what sounded like a muffled explosion, I turned around and saw that the spacecraft appeared to be engulfed in flames. The area near the white room access door was engulfed in flames and level A8 quickly filled with smoke. The nearest exit was via the southwest elevator, and I and several others took this elevator to the ground level.

/s/ Joseph L. Stoeckl

JANUARY 29, 1967

I'm Joseph L. Stoeckl, Shift Supervisor NASA Quality Control at Kennedy Space Center. On Friday, 27th of January at approximately 6:30 I was on the adjustable 8 level Complex 34. At the time, I was standing with my back to the spacecraft reading an entry in the NASA Quality Control tie-in log. Approximately 6:30 upon hearing what appeared to be muffled explosion, I turned around and saw that the spacecraft 12 command module was engulfed in flames. Immediately after this the adjustable 8 level filled with dense smoke and seeing that there was quite a number of people up there who appeared to be in a better position than myself or closer to the white room and having access to fire bottles, I being in the southwest corner of the adjustable 8 level, I departed the area by using the elevator on that quadrant. We descended to ground level and vacated the pad.

HENRY H. ROGERS, JR.
NASA
JANUARY 27, 1967

At approximately 1825, I was on the southwest elevator going up to the White Room (level 8) on the way up I heard on the P.A. system or coming from the gantry area - fire - fire - a battery fire. I got off on the 8th level and asked a PAA guard to please hold the elevator at this level.

I entered the White Room to locate a CO_2 bottle to extinguish the flames. The fire seemed to be burning from the inside of the Spacecraft to outside as the flames were coming out of the servicing access panels. We expended (Mr. Higgenbottom, NAA Inspector and I) all CO_2 bottles on the 8th level, after approximately 10–15 minutes we located the gas masks. I and a NAA shop man donned ours and entered the Spacecraft White Room and attempted to remove the Spacecraft inner hatch. We were unable to get it all the way out or to force it downward when we finally had it out far enough to see and reach into the inside of the Command Module, due to the intense smoke and heat, the inside appeared to be a mass of charred materials, after we had extinguished all visible flames, we were ordered off the complex by Public Address System.

/s/ Henry H. Rogers, Jr.

JANUARY 27, 1967

At approximately 6:21 in the evening on Friday, January 27, I was on the southwest elevator at Pad 34 going to the white room. On the way up on the elevator I heard on the PA system that there was a fire in the spacecraft and as the elevator was going up I heard fire, fire, it's a battery fire. And the elevator stopped on the 8th level there was smoke coming out of the white room and there was a North American technician standing there looking for a fire extinguisher. I found one behind the 8th level entrance door with the walk way, I gave him the fire extinguisher and my coat to wrap around his face. I tried to secure the door open to let the smoke out and went in and found another fire extinguisher. We fought the fires until for about five or six minutes and we located the gas masks. We donned gas masks and the pad leader requested we go in the white room to assist in getting the inner hatch off. When I got in the inside of the white room, where the inner hatch was being removed, the hatch was loose but they couldn't get it out. They had quite a bit of trouble getting it out. I went outside and underneath the little white room that swings into the spacecraft I tried to jam the entrance hatch down with no effort. I went back in and we had it pushed down enough where we could barely see inside the command module and there was a lot of smoke and heat coming from the inside of the spacecraft. We reached in and we couldn't see anything, so we reached in to see if we could feel anything. All we felt was heat and ashes. I went back out and told the pad leader that there was nothing in there that we could get out. He said go back in and get the men out. By this time we had gotten a flashlight and the smoke was still so dense you couldn't see a thing. We reached back in there again and nothing could be found except ashes and heat. I went back out and reported this to the pad leader. We continued fighting the fire until we heard on the PA system all personnel evacuate Pad 34 levels at which time I walked down three levels and caught the elevator down.

CREED A. JOURNEY
NAA
MARCH 1, 1967

QUESTION: Mr. Journey would you please give your name, organization, location of where you were the evening of January 27 and a brief recounting of the events as they transpired on January 27, 1967.

ANSWER: Creed A. Journey, North American. I came up on level adjustable 8 to talk to the Pad Leader just prior to the fire. Shortly after I had entered the door on the level, someone said that they had fire in the Command Module. By the time that I had walked a quarter of the way around the Command Module fire broke out of the Command Module in high velocity streams. I had been on Level 7. I threw myself on the floor, due to the fact that I thought the Command Module was blowing up. There was high velocity streams of fire, oh, 6, 7 feet long coming out of the servicing ports on the southeast corner directly facing the ocean. I threw myself on the floor looking at the Command Module. After a few seconds, the fire died back down; and I realized that we could put the fire out that it wasn't going to blow up. It no longer was high velocity. It had settled back down. I did, I guess I wandered around A8 trying to find a fire extinguisher which I couldn't locate in the smoke and in the confusion. Finally decided that I couldn't find a fire extinguisher so I started to leave. One of the men from A7 came up with a fire extinguisher, and we put out the fire. We continued to have trouble with fire breaking out underneath the heat shield. The substance under there took us several fire extinguishers to continue to finally stop this blaze from breaking out. After the confusion was over, we did go down (I asked the Pad Leader's permission) to go down to 188 level and turn off the batteries for the....that were to simulate the fuel cell power supply. We went down and secured these batteries so that they wouldn't be on the service at the time. After securing the batteries, we proceeded on down the Tower and finally were taken in an ambulance to the hospital. By we, speaking of Bill Wingfield and myself, went down and secured the batteries and proceeded on down to the ground level and on the the hospital afterwards. Just prior to the time that fire broke out of the capsule, it sounded like - similar to a CO_2 fire extinguisher which I realize there wasn't any in use that soon; but I assume that it was a pressure relief of the Command Module. There was a large sound of this prior to the time that the fire broke out and came external to the capsule.

QUESTION: Have you any idea of the time, in seconds or minutes?

ANSWER: It would be in seconds, because I only had time enough to walk, as I say to walk a quarter of the way around the Command Module before the fire broke out, at the time I first heard that there was a fire in the capsule.

WILLIAM J. SCHNEIDER
NAA
MARCH 1, 1967

QUESTION: Mr. Schneider, would you give us your name, organization, and a brief description of your dutues. Then, launch into a recount of events, as you remember them, on the night of January 27 of this year.

ANSWER: My name is William J. Schneider, S-C-H-N-E-I-D-E-R. I work for NAA assigned to the Ground Support Equipment Section.

On the night of the incident, I was assigned to Level A7, the standby in the vicinity of the fly-away umbilical at approximate T-0 and also the reinstallation of the fly-away umbilical. I had gone to the A7 Level at approximately 6:15 to standby up there. We were monitoring the test on the squawk box on the 7 Level. There were, I believe, two mechanics and one other electrician with me, plus company and NASA inspection. The first indication that I had trouble was when I heard someone hollering, "Fire in the Spacecraft." I am not clear at this time whether it came over the speaker or whether it was someone on the Level above us, on Level 8, that made this statement. I don't recall anything coming over the speaker. I know that when we heard "Fire," very shortly thereafter, I felt heat on my back. I was sitting with my back towards the Service Module. At the time I heard the cry and felt the heat. I took off out the....I went out the door towards the east passenger elevator accompanied by several other people. The elevator had just departed from Level 6 and was going down. I saw that I couldn't get on this elevator to get down. So, I turned around to go back into the tower figuring that I would go in the tower to the steps leading down to the next Level and go down the stairs this way. At this time, I saw the fire; and there was fire inside the Service Module or it appeared to be inside the Service Module. I could see it through the open doors - the open quad doors. Someone at this time hollered that we had to get the fire out or else the LES would go; and another man and myself, Spacecraft inspector, got a fire extinguisher and started playing it inside the door of the Service Module. When this fire extinguisher ran out, I left Level 7, took the stairs down to Level 6 and got another fire extinguisher on Level 6, came back up to Level 7 and by this time, the fire seemed to be in pretty good control on Level 7. There wasn't anymore around. We looked up at this time and could see more fire on Level 8. So, we went back up out Level 7 up to Level 8 and started using the fire extinguisher up there. When this fire extinguisher ran out, I left again and went down to Level 6, two flights down, and got another fire extinguisher from the....it would be the altogether opposite corner (the west corner). I went back up to Level 8; and we used this fire extinguisher until it ran out. I then headed back out the door again back down to Level 6 and on the way ran into two more people coming up from ground level with a bigger fire extinguisher and some gas masks. We went back up to the 8th Level, I put on a gas mask; and we went inside with the big fire extinguisher. By this time, I had started coughing rather severely from smoke. The gas mask that I had gotten hold of didn't seem to be operating quite properly. So, I took it off, went back out and got another gas mask. When I came back in, the Pad Leader grabbed myself and another man. I had given the fire extinguisher to a third man up there. He grabbed us and said that we had to get inside; we had to get the men out. About this time, I was coughing real heavily; and my gas mask fogged up; and I just felt like

I was getting sick. So, I tore the gas mask off and went out across the access arm that comes in on Level 8 to the Umbilical Tower to get some air. I stayed on the Umbilical Tower about, oh time is hard to tell how long - thirty seconds or so - maybe, until I quit coughing a little bit; and I headed back across towards Level 8. I then met a man bringing one of the Spacecraft lead men out who was coughing real heavily, and I assisted this man in getting the Spacecraft man down to the ground. When I got down on ground level, the guards down there wanted us to clear the area. I went out across the Pad and did not go back into the area. The man bringing the big fire extinguisher up from the 6th Level along with the gas masks was McConnell, a NAA mechanic assigned to GSE; and the Spacecraft man who we helped, (it was McConnell also who was waiting) a man by the name Gleaves, Spacecraft lead man, across the access arm. I helped McConnell get Gleaves down below. The personnel assigned on the 7th Level with me before the incident occurred were: Bill Deaver, Electrician/NAA; Sam Williams, Mechanic/NAA; and Randy Rooker, Mechanic/NAA.

QUESTION: Did you notice any exploding or popping sounds or would you tell us please just what you did hear in the way of sounds?

ANSWER: There was no sound that you would normally classify with an explosion, not a loud bang or anything like this, no popping. About the only word that I could use to describe anything, any sound I heard, would be a sort of swooshing sound or great rush of air. This sound that I heard occurred before I was able to clear the area....shortly after, or at approximately the same time that I felt the heat on my back.

DAVE E. HOWARD
NAA
JANUARY 27, 1967

I was on station just below the G.S.E. umbilical. I heard one of the astronauts say they had a fire in the cockpit. Then a loud swoosh and a ball of flame came from the bottom of the Command Module. Everyone exited and went out to the Northeast elevator on my side and to the Southeast on the other side. I returned from out on stand and the area below command module around the umbilical was on fire. I extinguished this fire and then noticed the fire coming up out of sector one. I emptied fire bottle in sector one. Found another fire bottle and used it in sector one and on quad door. We then went to level "A" eight where they needed fire bottles. Fire was coming from access hatch nearest umbilical and from under the B.P.C. in that area. We emptied a couple of fire bottles in these areas. Then I grabbed the gas mask from outside southwest door of level and took them to pad leader on swingarm. I then went back for fresh air and a mask to use. The fire department arrived shortly after this and we cleared the pad.

This whole sequence started with the blast and continued till they announced for us to clear pad.

We were on level A Seven for two to three minutes and on A Eight for five to ten minutes.

JANUARY 27-28, 1967

I went out exit to my left. Turned and saw fire had diminished from original burst of flame. I put out fire between Command Module and Service Module and on quad door. Then put fire in Sector 1 out twice. I then went to level 8 and helped put out fire in access panel 17 and under B.P.C. and gave gas mask to pad leader.

/s/ D. E. Howard

Method Used to Reach Ground Level:

Howard used elevator #4.

J.C. SCOTT
NAA
JANUARY 27–28, 1967

I was standing on Level VII (7) just under the umbilical. Someone said, "Fire in cockpit." Almost at the same time I heard a noise of some kind started to run took two steps and second noise occurred. Large ball of fire fell from Command Module down to Service Module into Sector I (one). Got fire extinguisher helped put out fire on Service Module Sector I (one), was burning at this time from somewhere below. This took approximately 8 minutes then went to Level VIII (8) to help. At this time had got gas mask. When I got to Level VIII (8) fire was coming from all access. Got three access put out with help from several others, went into White Room to help, got there just as inner hatch was removed but was not able to see anyone. Went to get new mask at this time fire was out then cleared pad.

/s/ J. C. Scott

NOTE: Witness feels the 8 minutes mentioned above was more like 2 minutes after thinking it over.

ROBERT I. BASS

NAA
JANUARY 27, 1967

I was on station on the 200 ft. level of the umbilical tower manning UFET station (Umbilical Tower Facility Electrical Technician). I heard a muffled explosion and went out of the Acceptance Checkout Equipment (ACE) room to see what had happened. There was smoke pouring out and around the swing arm going into the White Room. I heard men shouting Fire! I grabbed a fire extinguisher and climbed up to the 220 ft. level and carried it across the swing arm to the entrance of A-8. There were men running around and in and out of A-8. I gave my extinguisher to someone inside of A-8 who used it on the side of the Command Module. The smoke was very thick and impossible to stay in for longer than a minute or two. They were trying to get the hatch off the Command Module, but it was too hot. I stayed on the swing arm until the hatch was removed. I then left and went down to the ground.

/s/ Robert Bass

JOHN C. McCONNELL
NAA
MARCH 1, 1967

This is John C. McConnell from North American. I am a GSE Technician. My duty station was on the 190' level on the water-glycol trim units. I was on the 190' level of the Umbilical Tower. I heard somebody say there was a fire in the Spacecraft. I was on the headset, but I can't remember whether I heard it come off of the headset or one of the guys up in A8 say it. After I heard somebody say fire in the Spacecraft, I stood up and walked around. Just about that time, it exploded. It lit up the whole A8 level when it exploded. I hollered at the guy up on the 200' level. He handed me down the fire extinguisher. I crossed the cat walk on to A6. There was a gas mask box sitting by the door. So, I had to break the seal on it. I grabbed two gas masks, went through 6, and climbed the stairs up to A8. When we got up to the top of the stairs, we put on gas masks and went inside with the fire extinguisher. I came in the south door on A8, went around the Spacecraft to the small connecting panel - I think it's where the cables go into the Spacecraft, the one closest to the White Room. That's where we used the fire extinguisher. After the fire extinguisher was completely empty, I talked to Don Babbitt and Jim Gleaves; and the only thing they said was get them out of the Spacecraft. By this time, they had the hatch off, both hatches. So, I went up and I looked in. You couldn't see anything but smoke. So, I came back out and got a flashlight....asked where they were (I'm not too familiar with the Spacecraft itself). I went back in with the flashlight and got as close in as I could. Even with a flashlight, you couldn't see anything--it was pretty smoky and it was pretty warm. I went back out, and I don't know how long I stayed out. We went back in again, and a fireman followed me in. I stayed in there with him in the White Room. He went in with his fire suit on, and he came back out and said, "Forget it," or something to this effect. I don't know exactly what happened. Then, I left and we went down on the elevator, the Umbilical Tower elevator to the ground and then went to the hospital.

BURT B. BELT
NAA
MARCH 1, 1967

This is B. B. Belt, North American Aviation, Lead Man/GSE, Complex 34. The following are the events as I remember them on the night of the incident on Complex 34: I had left A8 Level to go downstairs to the latrine. On returning and entering the express elevator, I overheard people yelling - coming down from the second level - that there was a fire in the Spacecraft. The elevator started up; and due to a situation in the elevator, it stopped at A6. The door opened, and I heard people from A8 yelling for gas masks. They needed them on A8 in order to get back in and go to work, I suppose. We found gas masks on A6, outside of the door on the northeast corner. By the time that I got to the gas mask box and broke the seal and opened it, there were two or three more mechanics and inspectors on the Spacecraft crew that got to A6. We loaded up with gas masks and immediately went to A8. We distributed them around to the people who were standing outside of the Level. We entered the southwest corner door into the Spacecraft and started getting fire extinguishers and fighting fires that were coming out from ports for qd's and so forth and so on around the Spacecraft. At that time if I remember correctly, firemen arrived with portable fire extinguishers on wheels; and the fire was put out. We worked in the area trying to get smoke out and doors opened so the smoke would clear. About that time, Lou Curatolo who is the first shift Pad Leader, instructed myself and three or four other technicians to go down the Umbilical elevator (the egress elevator) and enter ambulances and go to the Dispensary.

GEORGE W. RACKLEFF
NAA
JANUARY 27, 1967

I was on level A7 directly under the clean room at time of accident. Reason I was there was to assist the technicians in installing a modification kit to the A14-019 flyway umbilical. This was to be accomplished after the Plugs - Out Test.

I had been on the pad for about one hour. During this time some communications problems, apparently, were occurring with the crew members.

I was standing beneath and slightly to the right, looking inboard of the swing arm entry. A moment before the accident, I heard one of the crewmen say "Fire," then I saw a large puff of smoke and fire exploding from the area round the swing arm entry hatch. At this point a great amount of confusion started. My main thoughts were of safety. I followed the workman out to the elevator and went to the ground. This all happened about 6:30.

Since I had inhaled a small amount of the smoke, I was requested to go to the dispensary for a check up. I was released about 10:30 and returned to my motel room at Cocoa Beach.

/s/ George W. Rackleff

SAMUEL WILLIAMS
NAA
JANUARY 27, 1967

I was sent up to level A-7 to support OCP 0021 on the disconnect of the fly away umbilical (A14-019). I was sitting on a work stand monitoring the OCP between the TC and the Astronauts, they were having a lot of radio trouble, and switching back and forth between channels.

They were at T-10 minutes and ready to pick up, when one of the Astronauts, it sounded like Grissom, say, "There is a fire in the cockpit."

There was a scream from one of the Astronauts and then silence, then there was a very short lapse of time, and I heard the first explosion, which was not too loud, then immediately following it, there was a second explosion and fire came down through level A-7 at the swing arm where I was on the work stand, and I could feel the heat on the back of my neck. I run for the door and got to the elevator at the north east end of the structure, and waited to get down to ground level.

While I was waiting for the elevator, I looked up at level A8 and could see fire and a lot of smoke at that level.

/s/ Sam Williams

RANDY ROOKER
NAA
JANUARY 27, 1967

I was sent up to level A-7 to support the fly-away umbilical disconnect per OCP K-0021. I was to perform a modification on the A14-019 (umbilical disconnect) after it had been disconnected from the spacecraft. While monitoring the conversation between the test conductor and the Astronauts as to the communication problems between MILA and the Command Module, I understood the Test Conductor to tell the Astronauts to switch back over to VHF and pick up the countdown at T-10 minutes. There was a time lapse of, I guess, approximately two or three minutes, and then I heard Astronaut Grissom say, "We have a fire in the cockpit", and then I heard a scream over the intercom. Immediately after the scream, I heard a small muffled explosion and then a large explosion followed by a large flash of fire. The flame came through the opening between levels A-8 and A-7 where the umbilical swing arm connects, I immediately ran to the exit which leads to the northeast elevator, got aboard the elevator, and left the structure.

/s/ Randy Rooker, 420508

WILLIAM H. WINGFIELD
NAA
MARCH 1, 1967

My name is William H. Wingfield. I am employed with North American Aviation, Complex 34. My job is a GSE Electrical Technician. At the time of the accident, I was on Level 5 of the Complex structure. At the time of the accident, I was monitoring a GSE equipment on Level 5 and was required to stay there. I might add that the only thing that I could actually say for sure is that I did hear someone call out "Fire". I feel that it was Roger Chaffee. Again, this I'm not sure of; but after listening to the conversations of the other personnel involved, I feel that this was he. Momentarily after the fire began, I contacted my Lead Man (Steve Jones) who was in the AGCS area and asked him if I should leave my station, leave the structure, or go to Level 5 and help assist the other personnel up there. I was advised to stay at my station. (Correction, I was at Level 5 and asked my Lead Man if he suggested that I go to Level 8 to help in the evacuation or aid in any other way.) I was advised to stay at my station until further orders. Immediately thereafter, there was an announcement on the PA system to leave the structure. I left my area, went out of Level 5 to get on an elevator; and the elevator was not there. Approximately a minute later, another Lead Man, Mr. Journey, came out on the level where I was to get on the elevator with me. After getting on the elevator, went from there to Level 8. We were there for a few seconds (thirty seconds at the most) going through the level and from there we walked down, or I walked down to Level 188' and opened some breakers on a power supply. This was, I understand, the 20 volt power supply. However, I understand later that this power supply had not been activated or it was not being used at the present time. Nevertheless, I felt like that I should open the breakers to prevent any further fire or danger to any other people that may be around.

After leaving the 188' level, I walked from there down to the ground level across the Pad. After a delay of about ten minutes, we were (I say we - myself and other people that were around) taken to the Cape Dispensary for smoke inhalation tests and whatnot. While I was at my station on Level 5, I did not see any fire in the immediate area. However, there was quite a bit of smoke. I looked out of one of the windows on the Level, and I could see fire, paper flying from the structure or from Level 8 I suppose. But as far as any fire on my Level, there was none.

/s/ William H. Wingfield

MARVIN L. NELSON
NASA
JANUARY 27, 1967

I was on A-7 at southeast side of the service module. I heard the words "Fire in the Command Module" over the loudspeaker. It seemed that almost immediately smoke began to fill the area. (I was on A-7 waiting for the umbilical disconnect.) When the smoke started to fill the area, I went out to the southeast elevator. It was not working so I went back through the 7th level to the stairway and came down that way.

/s/ Marvin L. Nelson, NASA
Phone: 452-3611

PATRICK E. MITCHELL
NASA
JANUARY 27, 1967

I was standing on A7 at the A14-019 umbilical disconnect when the word "fire" came over speaker. The level filled with smoke, and I tried to get the southeast elevator which wouldn't work. I returned through the A7 level and noticed flames between Command Module and Service Module. This was all because level was filled with smoke.

/s/ Patrick E. Mitchell

W. C. DEAVER
NAA
JANUARY 27, 1967

I was on A-7 to work fly-away umbilical portion of test when the count was held at -10 min. Heard someone say there was a fire in cockpit and to get us out of here. I heard two explosions and then fire was coming out between Command Module and Service Module. I headed for the elevator and came down to ground level.

/s/ W.C. Deaver

WILLIS M. MEDCALF
NAA
MARCH 1, 1967

On or about 1825 Friday, January 27th, I left the Tech Trailer on my way to the Eighth Level. After getting on the elevator and rising three or four levels, I heard someone shouting Fire. When the elevator stopped on the eighth level I went to the door to go inside. I met Dale Higgenbottom on the way out to get a fire bottle. He went back inside and I tied the door open to let some of the smoke out. I then ran down to one of the lower levels and got an arm load of gas masks. I returned to the eighth level. As I brought the masks inside, I saw the Pad Leader standing on the swing arm. At this time the Firemen were starting to arrive on the eighth level. The Pad Leader looked in my direction and shouted that he wanted "Two Firemen right now". He said he had a Crew inside and he wanted them out. A Fireman and myself headed for the White Room. When we got inside I saw that the Boost Protective Cover (BPC) and outer hatch had been removed and the inner hatch had been pushed in and down. There was about a six inch to a foot gap between the top of the hatch and the hatch opening. I told the Fireman to give me a hand to get the hatch out. We almost had it out when he let his side go and took off. I ran out of the White Room and grabbed another Fireman. We went back inside and took the hatch out. The C/M was full of smoke and I couldn't see anything. Someone came up behind me with some flashlights. We looked inside again and all I could see was what appeared to be white ashes laying over the couches. I then went out on the swing arm and told the Pad Leader that there wasn't anything left inside. I then asked him if there was anything left that I could do. He said that there wasn't so I got on the umbilical elevator and went down.

/s/ W.M. Medcalf

ROBERT C. FOSTER

NAA

MARCH 1, 1967

On the night of the accident, I was working in the AGCS Room. We had a break, and I went up to the ramp and was checking the servicing units for security. I was in the fuel area when I looked upward and saw smoke pouring from level A-8. I immediately yelled, "Fire". at two PAA Security patrolmen who were stationed on the south side of the structure. They ran to their vehicle at once.

I then returned to the AGCS Room and got my flashlight and went back to the ramp. I observed some PAA people close to the east side of the tower and went over to warn them. It was then I heard the word being passed for gas masks and fire extinguishers on level 8.

Mr. Carl Black of NAA and myself carried a box of gas masks from the vicinity of the Umbilical Tower to the southeast corner elevator. I carried a fire extinguisher on also. Meantime, a PAA fire truck had parked adjacent to the elevator. We tried to get fire extinguishers from them. We got one small bottle and a fireman to go up the elevator with myself and a KSC Safety man.

Immediately upon reaching level 8, the fireman got off first with the fire extinguishers and went into the White Room. The Safety man and myself followed with the gas mask box and started passing them out. It was still smoky.

The floor was littered with empty extinguishers so I started moving them off to the side away from the immediate area of the Spacecraft.

Meanwhile, more extinguishers arrived and a fire hose was taken from its stowage rack and put into use.

During these events, the hatch was opened, and I heard someone say the astronauts were dead.

I cleared more fire extinguishers and gas masks, etc., out of the way and then stood off to the side or outdoors until Mr. Curatollo said there was no more we could do and to please leave the area, which I did.

/s/ Robert C. Foster

CLARENCE A. CHAUVIN
NASA
FEBRUARY 3, 1967

STATEMENT OF WITNESS: (Written)

The hold at T-10 minutes was a result of general communications problems with spacecraft and facility. I had judged that, although the spacecraft communications were not good, it would be worth a try to pick up the count. I informed the CSTC that we were ready to make our power transfer to internal, but we were requested to maintain present configuration because of crosstalk problems on the CVTS channel. At the first indication of trouble, there was little activity in the control room. I was reading the next operation in the procedure (to myself) when I heard something about a fire. I looked up at the TV monitor and saw something burning around the upper part of the command module. At this point, I was still not aware that we had a fire in the spacecraft. I had at first thought that a fire had started outside the command module and then someone over the headset confirmed that the fire was inside the command module. I immediately attempted to contact the command pilot over the headset with no response. I then had our communications people attempt to contact the spacecraft from our Ground Service Equipment transmitter located at the Manned Spacecraft Operations Building. No response was received in this mode, so our next action was to power down the spacecraft as rapidly as possible. The instructions to make the communications check with GSE and the order to power down the spacecraft were given off of the headset in order to minimize traffic on the command channel (Black 3). From this point on, there were no control room functions performed. Sometime later we had the control room secured with a guard at the door. Written statements were obtained from each of the different groups that were on station at the time of the incident. All recorders were stripped and data confiscated. All procedures and documents were impounded and held in the control room for further disposition.

/s/ C.A. Chauvin

FEBRUARY 3, 1967

QUESTION: Would you identify yourself by name and organization?

ANSWER: Clarence Chauvin. I work for the Test Conductor's Office in Spacecraft Operations.

QUESTION: Mr. Chauvin, you probably are aware that this information is of a critical nature regarding the review board's attempt to learn as much as they can from a causative standpoint regarding the incident, and you are requested not to discuss any information which you may have except to authorized members of panels or the inquiry board. Mr. Chauvin, would you describe your responsibilities and duty location with respect to the Plugs-Out Test, conducted on Complex 34 on January 27, 1967.

ANSWER: I am the NASA Spacecraft Test Conductor. My basic responsibilities are to conduct the test in real time with the crew and all the support people. The location of my duty station was at the MSOB ACE Control Room 1.

QUESTION: Would you describe the events which you observed prior to, during, and subsequent to the incident which occurred on Complex 34 on the day in question. We ask, wherever possible, that you give us time references or time frames, specific locations, as well as you can define them, or use reference to structural points.

ANSWER: I would first like to preface any comments regarding the incident by recapping the problems that occurred that were not resolved at the time of the incident. The first problem that we encountered was when Gus Grissom ingressed into the spacecraft, and hooked up to his oxygen supply from the spacecraft. Essentially, his first words were that there was a strange odor in the suit loop. He described it as a "sour smell" somewhat like buttermilk. We stopped to take a sample of the suit loop, but it was our intent in discussing it with Gus, that we would continue under these circumstances. The next problem that was encountered was regarding a high oxygen flow indication which periodically caused the master alarm to come on. In discussing the problem with our Environmental Control System people in real time, they felt that the high oxygen flow indications were caused by movement of the crew, thereby establishing transients in the oxygen system itself. At the time of the incident, there was no further resolution on the high oxygen flow. The third problem that was encountered was regarding the command pilot's (Gus Grissom's) communications from the spacecraft to the Control room. During the course of trouble shooting the problem in the spacecraft, the problem appeared to be localized with, or when, Gus put his VHF AM switch to the Transmit/Receive position. The crew did interchange cobra cables. It was my assumption at the time that the interchange was between the command pilot and the senior pilot. The command pilot's cobra cable was later changed with a spare. The problem still existed, which led us to believe that it was localized somewhere with the switch or behind the panel. Over and above the localized communication problem that we encountered in the spacecraft, we also had problems with general communications, even from the MSOB to the Complex 34 blockhouse. The overall communications problem was so bad at times that we could not even understand what the crew was saying. Just prior to the hold at T-10', which was approximately 1821, we had the crew go to the S-band mode of communications. We had the CAST panel configured to put S-band on Black 3 only. In this mode of communications, we were able to obtain a fair conversation with each of the crew. Under these circumstances, at approximately 1827, we informed the blockhouse that we were ready to pick up with the count. The blockhouse asked us to stand by because they were having crosstalk problems on Black 2, apparently picked up from our Black 3 channel. At this time, everyone in the control room was standing by their consoles to pick up at the T-10' point. I specifically recall that I had my pen in my hand and I was glancing over the next page to keep it fresh in my mind. At the first call of "fire" over the headset, I immediately glanced up to look at the TV monitor in the control room. I noticed flames somewhere in the vicinity of the apex cover at the top of the command module. I could not tell what was burning, and, at the time, I was not aware that we actually had a fire in the spacecraft. I had thought possibly the call of fire had come from someone on level 8 and so I continued to watch the TV monitor. Shortly after that, someone on the headset confirmed that we did have a fire in the spacecraft. I immediately attempted to contact the command pilot on Black 3, possibly four to five times. I got no response and I then proceeded to have our communications people attempt to establish contact with the spacecraft via our GSE, which would be an RF link

transmission. Attempts to reach the crew were unsuccessful in this mode, and by this time we had actually realized, or I had actually realized, that the crew was in real trouble. My next step in the control room was to get the spacecraft powered down as rapidly as possible. My direction was to the Electrical Power System people, not in specific directions, but just to power down the spacecraft as rapidly as they could. Both my directions to the communications people and to the power people were not over the headset. It was sort of yelling across the room in order to keep the Black 3 command channel as clear as we could. We were continuously monitoring the TV in the control room and we did see the smoke, and we did see the people come out, attempting to put the fire out. The TV monitor in the control room had the view looking along the -y axis of the spacecraft. We could not see the hatch from this view. We could not see the Pad Leader's desk from our view, and at the time that I first noticed the fire, there were no personnel that I could see on our monitor. Everyone in the control room had their headsets on at this time, and everyone was monitoring the Black 3 channel. As we listened over the headsets to the people on level 8 talking, we confirmed on our TV monitor what they were saying regarding the smoke getting progressively worse. Much of the activity that we saw in attempting to put the fire out, the people were not on headsets, they had donned their gas masks at this time. We had a second monitor, TV monitor, in the control room with a view of one of the service module quads. We had used this monitor in our simulation of the Reaction Control System static fire. Sometime during the course of events after the fire had started, I did glance at the second monitor and noticed that there was a fire already burning toward the top portion of the quad. As I watched the monitor, a technician.....

As I monitored the TV shot of the quad, a technician with a CO_2 bottle moved into the area, and we watched having hopes that possibly they would be all right, but had just lost communications.

QUESTION: Mr. Chauvin, would you review for us what transmission you overheard on Black 3 prior to and during the fire.

ANSWER: I would estimate that approximately 30 seconds before I heard anything audible concerning a fire, there were no transmissions from the crew or from the blockhouse. I heard something about a fire but I couldn't make out the details. I do remember hearing the word "fire" through, at that time was when I glanced up to look at the TV monitor. Again, at this time I was not sure if the fire had started outside the spacecraft or what the situation was. It was not until later when I heard the blockhouse attempting to talk to the crew did I realize that the fire was actually inside the spacecraft. I recall hearing the blockhouse - I had assumed it was Chuck Gay - ask the crew to egress. He said "Crew egress". He then followed up with the question, "Crew, can you egress at this time?" There was no response from the spacecraft that I heard in the control room. Now, it was at this time just following his lack of communications with the crew that I had our communications people attempt to reach the spacecraft via the RF Loop. I then recall the blockhouse - again, apparently Chuck Gay - instructing the Pad Leader to get the crew out. The Pad Leader's response to the best of my recollection was that they were trying but the smoke at that time was so bad that it created problems. I have specifically and intentionally neglected to use time references from the base line of when we knew we first had trouble because of the confusion in my own mind - it appeared much, much longer for each of the different operations than it actually was.

/s/ Clarence A. Chauvin

#45T
WILLIAM H. SCHICK
KSC/NASA (DLO)
FEBRUARY 3, 1967

ANSWER: I am William H. Schick, John F. Kennedy Space Center, Directorate of Launch Operations.

QUESTION: As a point of information, Mr. Schick, you are probably well aware of the critical nature of the information that you will furnish to us and we request that you don't discuss any specific knowledge or observations you may have regarding the incident on Complex 34 with anyone other than those authorized by the Review Board in session or members of the subpanels. Would you describe your responsibilities and location with respect to the Plugs Out Test conducted on Complex 34 on the day in question.

ANSWER: On the day in question, I reported to work at 1630 hours as Assistant Test Supervisor in the Blockhouse, Complex 34. I relieved Bert Grenville, who was the day assistant test supervisor and assumed my responsibilities of monitoring the spacecraft checkout procedure for DLO in the Test Supervisor's position. In addition to this responsibility, I had the responsibility of keeping up the Test Supervisor's log with respect to the space vehicle procedure. I was located at a Test Supervisor console.

QUESTION: To the best of your ability, will you describe the events which transpired shortly prior to, during, and subsequent to the fire which occurred on the pad on January 27. We ask that you give us specific or approximate time references if possible, or perhaps a time frame or time lapse from one activity to another, and then your references to other prts of the blockhouse or the pad area, if you could define them to us by some either specifically, relative to a diagram, or make reference to some physical structure in that area.

ANSWER: From 1630 until the time of the incident, I was performing my function of listening to OIS networks Black 1, Black 2, and Black 3 and noting various items on the Test Supervisor's log sheet. Items that were listed were only items that I thought to be significant during a normal type countdown. This includes problem type items and milestones that had been completed through the checkout procedure. While monitoring on Black 3 and just prior to the incident, there is recorded in my log various statements of communication problems that the S/C crew was incurring just prior to this particular event. I might also note that all times quoted by myself that are listed in my log were recorded from the Greenwich Mean Clock which is located on Test Supervisor Panel A-9, at which I was positioned. At the time of the incident, which was 1831, the first words I heard of anomaly was a report of "Fire in the cockpit". At this time I immediately looked at the Greenwich Mean Clock and recorded the hour and minutes. The words that were heard over the OIS "Fire in the cockpit", could not be identified by myself as to the particular channel it was transmitted on since I was monitoring Black 1, Black 2, and Black 3 at the time. After the incident I continued to record to the best of my ability all significant events that were coming over OIS. The majority of these events being on Black 3 with the exception of a few launch vehicle directions that were being given out by the launch vehicle test conductor. At this point in recording I would like to cover a brief period of time from my log that I can verify is accurate with

respect to times and statements that are in the log which were heard over the OIS system. Item No. 1 - recorded at 1831 - The words "Fire in the cockpit", I presume came over Black 3. Item No. 2 - 1832 - The pad leader was directed by the Test Supervisor to help the crew egress. Item No. 3 - 1834 - The Command was given over the Black 3 channel for the spacecraft to immediately power down. Item No. 4 - 1835 - The launch vehicle reported that all power was down except for power to support the water system at that time. Item No. 5 - 1836 - It was reported on Black 3 that the S/C hatch was open. Item No. 6 - 1836 - It was reported on Black 3 that the S/C hatch was off. The following is a quote. It was on OIS Black 3. "Too much smoke in the spacecraft to see". Item No. 7 - 1838 - On Black 3 a report that people were available with gas masks but cannot see. The following quote on Black 3: "Can feel Astronauts but cannot see". "Need battle lights." The CVTS log sheet that I was keeping was kept until 1928 - at that time the log sheets were turned over to the space vehicle test supervisor. Now that I have reported on my log I would like to give a brief description as to what I saw during this time period on the TV monitor. One thing must be kept in mind. These visual observations of mine were very limited and that most of the time my eyes were on my log sheet as I was recording. Immediately following the words that I heard, "Fire in the cockpit", I looked directly across the blockhouse to TV monitors. At this time I saw flames coming from between the interface of the spacecraft and the top of the Spacecraft Lunar Module Adapter. The flames at this position appeared to be licking about half-way up the side of the spacecraft. When I mentioned SLA I was referring to the interface between the command module and the service module. I do not remember how much time had elapsed between seeing the incident just described and when I looked at the TV monitors again. The thing that I remember visually the next time was with the spacecraft hatch removed and viewing the monitor that had the fixed TV camera on the spacecraft hatch. All that could be seen was solid smoke at the entrance of the spacecraft hatch. And, occasionally, a person moving about into the hatch and back out. This concludes my visual observations for the time period recorded in my log and so described in this recording.

OCP NO.	STC LOG SHEET	DATE 1/27/67
OCP TITLE S/C PLUGS OUT [illegible]		PAGE 1 of 6

TIME	REMARKS
0555	NO CLTC ON 5TH. WILL PICK-UP AT 0600 ANY NOW, DAC & [illegible] ARE GOING ON [illegible].
0600	PICKED UP COUNT AT T- 8 HRS. STILL NO CITC & CLTC.
	CRITICAL POWER NOT ON TODAY DUE TO CX 34 [illegible] STATUS.
	S/C OCP REV-1 NOT SENT TO HOUSTON YET
0720	DAC COMPLETED ORDNANCE CHECKS.
0720	LV PWR UP,
0730	S/C READY FOR POWER UP.
0735	GSE PWR UP START. (S/C)
0751	S/C GSE POWERED UP.
0752	START S/C BUS PWR UP.
0811	S/C PWR ON.
0815	G&N TEST STARTED.
0845	L/V ORDNANCE CHECKS COMPLETE
0920	S-BAND CHECKS TO HOUSTON N.G. (VOICE CHECK)
0936	S/C RF COMING DOWN.
0938	RF SILENCE & CONTROLLED SWITCHING STARTED
1000	S/C HAVING PROBS. WITH PWR. XFER TEST COULD NOT GET BUS ON WHEN THEY WANT INTERNAL. (PROCEDURAL PROB.)
	S/C ECS GO2 SERVICING RUNNING SLOW PROBABLY 1/2 HR. BEHIND.
1015	S/C COMPLETED PWR XFER OK
1019	S/C STARTING [illegible]

Margin annotations: * DOCUMENTED BY R.F. Page (0555–0600 entries); Documented By B. [illegible] (0720–0938 entries); Documented By R.F. Page (1000 entries); [illegible] (1015 entries)

KSC FORM 4-30NS (4/66)

OCP NO.	STC LOG SHEET	DATE 1/27/67
OCP TITLE	S/N PLUGS OUT 012	PAGE 2 OF 6

TIME	REMARKS
1033	INSTRUMENTATION TESTS COMPLETED S/C. SHOULD BE COMPLETE AT T-4:45.
1047	S/C REQUESTS HOLD AT T-3 HR. APPROX 1 HR.
1100	HOLD AT T-3 HRS TO ALLOW S/C TO CATCH UP
1102	W/R LATCHUP COMPLETE.
1122	L/V ORDNANCE HOOKUP & INSTALLATION COMPLETE, RF SILENCE OFF.
1127	SCS ACTIVATION COMPLETED.
	G&N COMPLETED.
1148	S/C REQUESTS AN ADDITIONAL 20 MINUTE HOLD. P/U SHOULD BE AT 1220 E. S/C PROCEDURE PROBLEM AT T-3 HOURS. (SW LIST CANNOT BE STARTED UNTIL COMPLETION OF ECS TESTS)
1209	ECS TESTS COMPLETE
1211	PRE-INGRESS SWITCH LISTS STARTED.
1220	PICKED UP COUNT AT T-3 HRS.
1233	COMPLETED PRE-INGRESS SWITCH LISTS.
1244	CREW LEAVING MSOB. EST. ARRIVAL 12:56 E
1255	CREW ARRIVED. WO
1257	CREW INGRESS STARTED WITH SCMD.
1303	COMMAND PILOT REPORTS "FUNNY" ODOR.
1304	SPLT INGRESS STARTED.
1308	SPLT IN.
1309	SSRP INGRESS STARTED.
1314	REQUEST SAMPLE OF PILOT AIR (LOW PRESSURE OX.) HOLD REQUESTED AT T-2 HRS. TO TAKE SAMPLE
1320	HOLD: AWAITING SAMPLERS FOR PILOT AIR.
1325	CREW INGRESS COMPLETED.
1355	STILL WAITING WORK ON SAMPLERS.

Documented by B. L. Grimmell

NSC FORM 4-8016 (4/66)

OCP NO.	STC LOG SHEET	DATE 1/27/67
OCP TITLE S/V PLUGS OUT OAT		PAGE 3 OF 6

TIME	REMARKS
1413	BENDIX SAMPLES IN W/R.
1423	SAMPLE TAKING COMPLETE.
1426	EXTEND HOLD ANOTHER 10 MINUTES TO COMPLETE SUIT CKT CHECKS.
1433	ANOTHER 10 MINUTE HOLD EXTENSION FOR ECS SUIT CHECKS. EST. P/U @ 1445.
1439	SUIT CKT CHECKS COMPLETED.
1442	PICKED UP COUNT AT T-2 HRS.
1450	INNER HATCH INSTALLED.
1503	(START PART A – EDS TEST (ABORTIVE ATTEMPT)) ~~COMPLETE PART C –~~
1506	CRTE HAS DISPLAY CONSOLE PROBLEMS. MOVING TO NEW CRT ...
1507	RESTART PART A – EDS TEST
1513	COMPLETE PART A
	ASTRONAUT COMMUNICATIONS ALL SCREWED UP.
1520	START PART B – EDS TEST
1522	COMPLETE PART B.
	(DISPLAYS BUSY) HELD UP ABOVE STEP.
1527	START PART C – EDS TEST
1530	COMPLETE PART C –
1530	START PART D – EDS TEST
	~~COMPLETE PART D~~
	SAMD DID NOT RECEIVE ABORT REQUEST LIGHT.

B.R. Page

Documented By B. R. Durnelle

KSC FORM 4-26NS (4/66)

OCP NO.	STC LOG SHEET	DATE 1/27/67
OCP TITLE	S/V PLUGS OUT OAT	PAGE 1 OF 6

TIME	REMARKS
1540	PART D TRIED AGAIN — SAME RESULTS, NO S/C ABORT INDICATION.
	SCMD RECEIVED ABORT LIGHT WHEN ABORT REQUEST PANEL ENABLE SWITCH WAS ACTIVATED. TEST IN PROGRESS AT THIS TIME.
1556	COMPLETE PART D — EDS TEST
1552	HOLD - EST. 15 MINUTES. CATCH UP — EDS, CABIN FUNCTIONS & ABORT TEST.
1607	START ABORT TEST - (T-1 HR.)
	HOUSTON ABORT CKS. GOOD
	CVTS ABORT CKS. GOOD
1614	COMPLETED ABORT TESTS.
1616	HOLD EXTENDED TO ALLOW TIME FOR WORK COMPLETION PRIOR TO TERMINAL COUNT. CABIN PURGE TAKING LONGER THAN ANTICIPATED.
1633	FDAI TEST COMPLETE.
1636	CABIN PURGE COMPLETE. LEAK CHECK IN PROGRE ESTIMATE 30 MINUTES TO BE AT T-50 CONFIGURATIO
1645	BK-3 OIS REPORTED TO RCA AS MARGINAL BY CVTS.
1655	MSTC REPORTS OUTER HATCH INSTALLATION STARTED. WHEN HATCH INSTALLATION COMPLETE S/C CAN PICKUP AT T-50.
1657	MSTC REPORTS CABIN LEAK RATE ZERO.
1700	OSTC REPORTS OUTERHATCH LOCKED IN PLACE
*1703	COUNT PICKEDUP AT T-50'
1704	L/V READY FOR HOUSTON CMD CHECKS.
1708	SCO BROUGHT UP COMMAND CARRIER.
1710	L/V RECEIVER/DECODER ON FOR CMD CKS.
1713	HFLT SENDING CMDS TO L/V
1714	S/C PROCEEDING WITH SPS ENGINE GIMBALING.
1716	L/V REPEATING SINGLE WORD DUMP WITH HFLT.

Documented By B.T. Duneville

Documentation by William H. Schick from this point

KSC FORM 4-20NS (4/66)

Entire page documented [illegible] W. H. [illegible]

OCP NO.	STC LOG SHEET	DATE 1/27/67
OCP TITLE	S/V PLUGS OUT OAT	PAGE 5 OF 6

TIME	REMARKS
1718	MSC COMMUNICATION WITH S/C MARGINAL
1721	SRO REPORT L/V BEACON #1 GO.
1724	SRO INTERROGATING L/V GLOTRACK
1724	HFLT INCURRING TM PROBLEM.
1727	L/V PROCEEDING WITH RANGE CUTOFF COMMANDS.
1728	MSC REPORTING COM PROBLEMS BK-3
1729	L/V COMPLETE CUTOFF CMD. CHKS.
1733	L/V PROCEEDING WITH PWR TRANSFER TEST.
	S/C EDS PWR ON.
1734	L/V I.D. BEACON #2 INTERROGATION COMPLETE.
1735	CSTC REQUESTED HOLD AT T-15 FOR S/C TO CATCH UP DUE TO COMM PROBLEMS. UHF-AM SEEMS TO BE SHORTING. COBRA CABLE.
*1738	T-15 MINUTES AND HOLDING FOR S/C COM PROB. EST. 10!
1741	HOLD EXTENDED 10! S/C COM STILL HAVING PROBS
1753	MSC REPORTS HIGH O_2 FLOW. CAUTION LIGHT ON IN S/C.
1802	CSTC CLEAR FOR S/C STATIC FIRE SIMULATED. CLOCK HOLDING. S/C PROCEEDING PER OCP.
1812	S/C STATIC FIRE COMPLETE
* 1815	T-15 AND COUNTING
1816	S/C COMMAND PCT. GOING THROUGH HARDLINE. NOT CONFIGURED TO STAND AS PRESUMED. IN THIS CONFIG. WE WOULD LOSE COMM. WITH SCMD, CLOCK WILL BE STOPPED AT T-10 FOR FURTHER INVESTIGATION OF SCMD COMM. PROB.
1819	T-10 MINUTES & HOLDING S/C COMM PROB.
1823	SRO REPORTS NOISE FROM GND SOURCE IS LOCKING UP UHF XMITTER.
1826	UHF XMITTER KEY LOCK UP PROB. CLEARED.
1829	MSC REPORTS S/C BATTERIES ARE GOOD FOR 5HRS ONLY.
1831	FIRE IN THE COCKPIT
1832	PAD LEADER DIRECTED TO HELP CREW EGRESS.
1834	S/C PWR DOWN.
1835	L/V LEFT ON POWER FOR WATER SYS. ALL OTHER PWR OFF.
1836	S/C HATCH OPENED.
1836	S/C HATCH OFF. TO MUCH SMOKE IN S/C TO SEE.
1839	MORE AVAILABLE WITH MASK BUT CANNOT SEE. "CAN FEEL ASTRONAUTS BUT CANNOT SEE." NEED BATTLE LIGHTS.
1843	PAD LEADER REPORTS HE HAS FIRE SUPPORT & MEDICAL. C/M NEEDS COOLING DOWN FOR ANY FURTHER WORK.
[illegible]	[illegible]

KSC FORM 4-36NS (4/66)

Entire page documented by W or Schick

OCP NO. | **STC LOG SHEET** | **DATE** 1/27/67

OCP TITLE S/C PLUGS OUT OAT | **PAGE** 6 OF 6

TIME	REMARKS
1849	PAD SAFETY REPORTS COMPLETE COMPLIMENT OF DISASTER PERSONNEL PROCEEDING TO SERVICE STRUCTURE.
1852	CVTS ANNOUNCED NO OUTSIDE PHONE CALLS PERMISSABLE.
1855	PAD LEADER IN WHITE ROOM REQUEST AREA CLEARED EXCEPT EMERGENCY PERSONNEL.
**	STATEMENT MADE ON OIS BK'S THAT BATTERIES THAT CAN NOT BE DISCONNECTED (S/M?) COULD POSSIBLY HAVE CAUSED THE PROBLEM.
1906	PAD LEADER REQUEST DEMATE LES AFTER RESCUE OPERATION COMPLETED. FIRE WATCH STANDING BY IN ALL AREAS.
1909	LIVE POWER SUPPLY TO BE DISCONNECTED AT A-4.
1911	S/C PERSONNEL REPORT GAS CHROMATOGRAPH WAS NOT SERVICED.
1914	PAD LEADER REQUEST S/C POWER STATUS. REPORT FROM MSTC THAT ONLY 3 BATTERIES ARE ON THE BUS. LOWER EQ. BAY PANEL 150. THREE CKT BRKS. S/C PANEL LIGHTS STILL ON. S/M STILL HAS LIVE BUSS, ON INTERNAL PWR. THESE INDICATE PWR STILL ON. CAN NOT BE SECURED FROM EXECUTE. NO L/V POWER COMING UP THROUGH INTERFACE. PROCEEDING TO TURN OFF PWR IN ACCS ROOM. WILL TRY TO TURN OFF WITH R-STARTS. POWER WILL BE REMOVED MANUALLY AT ACCS ROOM.
1925	ALL S/C RECORDS IMPOUNDED
1928	PAD LEADER REPORTS GSE POWERED DOWN.

KSC FORM 4-30NS (4/66)

#8
G.W. PROPST
RCA
JANUARY 31, 1967

I work for RCA at LC-34/37 in the closed circuit operational TV system.

At 1825 on January 27, 1967, I was on duty in LC-34, stationed at the OTV control racks located in Area D on the first floor. I was working with camera 29 which is one of the cameras on the A8 level. This camera is on the northeast side and views the exterior of the spacecraft and the White Room. The video level from this camera had fallen off and I was readjusting it.

My OIS headset was active on Black 7 and I was also monitoring Black 3, the spacecraft test channel.

The test was at T-10 minutes and holding; there were communications going on between the test conductor and the spacecraft occupants.

At about 1830 one of the Astronauts said, "Fire in the cockpit", this was followed by a scream and then silence.

I know that it was the voice of one of the Astronaut's as the sound seemed to be VOXed off. It was either White or Chaffee that spoke as Grissom's voice is deeper and somewhat gruff. The voice was clear, but very excited.

Immediately I looked over to our camera 24 which is located inside the White Room. I did not have to move in order to see this camera as it is one monitor to the left and one monitor up from where I had been looking.

The camera itself had been "zoomed in" about an hour before in order to see the hatch with the porthole on the spacecraft.

I saw the following: as soon as my eyes caught sight of the camera 24 monitor I noticed a bright glow inside the spacecraft, however, I saw no flames. Just a split second later I saw flames go past the porthole. The flames were not in the order of an explosion but were, in fact, that of something just burning. The fire increased steadily during the next two to two and one half minutes.

After about three minutes the flames from the outside bottom of the spacecraft began to eat through the area where the bottom lip of the White Room meets the spacecraft. The White Room began to fill with smoke. Prior to that time the air was clear. Also, about this time, flames could be seen coming from under the spacecraft hatch.

Outside the White Room, the A8 area started to fill with smoke. This happened approximately 30 seconds after the cry of fire.

Because of the clear atmosphere in the White Room I was able to see the Astronauts in the Spacecraft. I noted that at this time no one entered the White Room to remove the hatch.

At the time the cry of "Fire in the cockpit" was made, the increased light in the spacecraft made it possible to see the Astronauts inside.

The first thing I saw was what appeared to be the center Astronaut's arms reaching above his head toward the hatch. There followed a great deal of motion as his arms seemed to fumble with something and then quickly reach back for it. From time to time the top of his helmet could be seen.

About 15 seconds after the cry of fire, I saw more arms in front of the porthole seemingly coming from the left. Looking further back into the spacecraft, I could see the legs of the center Astronaut moving about.

The movement inside the spacecraft lasted about 2 minutes before the flames began to block the view.

At first the flames were behind the Astronaut's arms toward the center of the spacecraft and then spread forward to the area of the hatch.

During the entire time that I watched the Astronaut's moving, their spacesuits were silver in color with no signs of being burned or charred.

I think it noteworthy that no one entered the White Room until it had become smoke-filled some minutes later. Had anyone entered and gone near the spacecraft they would have been visible on the TV camera.

I know that my times are very near accurate because I remember saying to others that had gathered in the area of the monitor: "Blow the hatch, why don't they blow the hatch?" One person that was near said that the spacesuits would protect them from the heat until they could get out. A short conversation then took place concerning how long and how much the suits could protect them from the fire. Also comment was made on why no one had entered the White Room as yet. During the time of this conversation the White Room was still clear and the Astronaut's motion still visible.

About 5 minutes after the incident we had lost all three cameras, the two on A8 and the one in the White Room, due to the dense smoke. However, it could be seen from the A7 cameras, a level below, that CO_2 was being used on the fire.

Once the fire was out rescue workers entered the White Room and removed the hatch. Power down of the spacecraft now took place as the pilots display panel was still on and the intense heat kept rescue workers out.

Shortly thereafter I was told to secure the White Room camera ending the view of the White Room.

I will make no conclusion or attempt to explain what happened that night. I only hope my observation may be instrumental in the prevention of like occurrences.

/s/ G. W. Propst
RCA Employee #72752

#8T
G.W. PROPST
RCA
FEBRUARY 16, 1967

These are additional comments made by Gary W. Propst, RCA, as a supplement to his statement.

QUESTION: Would you describe for us the adjustments which you made on Camera 24 and, as well as you can, reconstruct the timing involved and the effects that these adjustments may have had on the image projected.

ANSWER: When the initial call, "Fire in the Cockpit", when I heard this, I looked up at the monitor on Camera 24, and at this time saw a faint glow to the left

center of the inside to the cockpit. I started to readjust the camera at this time, using the beam and target controls. These controls - the target is used first of all for giving a contrasting picture, one of black vs. white. The beam is a supplement adjustment to the target controlling the amount of electron flow hitting tha face of the tube. In essence, the camera, at the time, was set and adjusted for the outside of the hatch and the light levels there. When I first looked at this there was no fire visible at the time, and I readjusted the camera using the beam and target control for the internal light level which was a little bit lower - or was lower at this time - than what it was on the outside. The effects on the picture of moving the beam and target adjustments - the target adjustment to give you a contrast picture, black vs. white, if it is set for a moderate gray scale and there is a bright light off to one side, or anywhere in the picture, this could appear washed out or kind of ragged on the edges - very white, to the point where any detail, if there was any in this information, couldn't be seen at all. The beam adjustment, when it's moved, or when it's moved back for giving you the best quality picture, this adjustment will interact with the target when it's first moved, it will completely wash out the picture to a total white picture. To get a good picture, the target must then be adjusted for maximum gray scale without washed-out whites and with fairly good blacks, and then the beam adjustment moved so you get your best quality picture. This is done just as soon as the beam is moved into the ...as soon as the picture appears on the screen. This is when you have your best quality picture Your electrical focus can also be moved or touched at this time just to sharpen the picture. This actually has no inter-effect on the white scale or gray scale of the picture. When I first looked at the camera, I did make these adjustments to it, at which time the picture could have appeared to be washed out for a fraction of a second when the beam adjustment was made. Any light coming in thereafter, in other words the light in the spacecraft was lowered at this time and I was readjusting the picture for this lower light intensity in the spacecraft. When the beam adjustment was then moved, it would or could have washed out the picture for maybe 1/2 a second or so until the picture came back with a perfectly clear image.

QUESTION: Will you relate what effect the adjustments that you have just described would have on a picture being observed by other observers at other monitors, who are not aware that these adjustments are being made. What effect would it show in the picture itself?

ANSWER: First, with the target adjustment, if the target is increased, the whites will become much whiter to the point of being washed out or very bright on the screen with absolutely no detail. The blacks will lose detail and slightly go gray, in other words, a grayer scale rather than a totally black black. The second adjustment which goes along with the target would be the beam adjust. This would be moved into a higher position or a more maximum position. This would cause the picture to go totally white. In other words, the observer's monitor would go completely white with no picture detail whatsoever, then as the beam control is backed off, the picture would then appear or reappear and in its reappearance, again the whites would be washed out, the blacks gray, and then it would settle down into a normal good contrast picture. From the time I initially heard the call "Fire in the Cockpit." I looked at the monitor, there was a higher light level in the spacecraft, but no visible flames. I adjusted the camera for this particular light level. This total adjustment took a duration of about three to four seconds. During the adjustment time of three to four sec-

onds, any observations made on TV monitor, would not be reliable as the images were from adjustments more than they were from the actual happenings. I want to correct a statement made previous to this regarding the turning of the target and the black scale going into gray. Actually, the black scale doesn't turn more gray in color. It loses its detail and actually could be said to not appear more black but to appear less contrasting. There is no resolution within the area. It's washing out the picture you could say, in an opposite direction.

This concludes the statement of Mr. Propst.

#36
A. R. CASWELL
RCA
FEBRUARY 2, 1967

QUESTION: Sir, would you identify yourself by name and organization.

ANSWER: My name is Caswell, A. R., I am employed by RCA KSC communications project.

QUESTION: Mr. Caswell, would you discuss this memorandum on security classification, correction, would you review this memorandum on security classification and indicate your understanding.

ANSWER: Yes sir, I have read the memorandum on February 1, and am familiar with its content.

QUESTION: Mr. Caswell would you describe to us your observations prior to, during, and subsequent to the incident which occurred on Complex 34 on Friday, January 27, 1967. We ask that you specify locations, time references, and structural references points and your actions and activities at this time.

ANSWER: My assignment with RCA is one of a communications controller. During major test my duty station is behind the communication racks specified as area D, Blockhouse 34, first floor. This location is approximately mid-distance between the OIS and the OTV monitor racks. My duties are to insure the integrity of communications during major tests and to assist in any trouble shooting procedures that may be necessary to insure these communications. During the plugs out test on January 27, I was situated at my normal position in back of the communications racks, and, specifically, directly in front of the monitor for camera 24, which was the white room camera. At approximately 18:30 Eastern Standard Time my attention was directed to the monitor by OTV technician Gary Propst, his remarks was that there is a fire in the capsule. Prior to and during this time my attention was primarily concerned to maintaining communications. Conversing on the point to point circuit with our communications console at Merritt Island Launch Area. I had two head sets on at the time with a monitor on OIS Black 7 and OIS Black 3. Since the OIS unit I was using did not have a monitor capability it was necessary to wear two head sets and a considerable length of cord stretched down the back of the panels. Upon directing my attention to the remark by technician Propst, I observed on the white room camera, a flickering of flame inside of the capsule on the left side of the port hole. This flame flickered for some time I would estimate 15 – 20 seconds and then it spread across almost the full face of the port in the hatch cover. The picture that it displayed by this particular camera is one looking directly at the hatch cover with a primary observation of the port in the hatch cover. In this configuration with the hatch closed observation is limited essentially to the top of the helmet of the individual in the center couch, although absolute movement was difficult to describe since the helmet itself was white and the surroundings of the capsule, hatch cover, and other similar items were also white. There was no great definition nor shading of color to determine in what direction this movement took place. After observation of ten or fifteen seconds I would judge I glanced at another monitor we had on adjustable 8 which is situated next to the monitor that depicting camera 24

and I observed a cable leading to the capsule which was burning, and I remembered distinctly because the flames were dancing along the entire length of the cable. Reverting my glance back again to the camera covering the hatch porthole I would estimate that some 30 to 40 seconds elapsed before the flames reached a very high proportion, in which there was nothing visible but a white searing type of flame inside the cockpit. The period specified from 15 to, or rather to, 30 to 40 seconds was subsequent to my initial time that I observed the fire in the hatch. The fire, the flames that I saw were definitely inside the capsule, there was no fire around the hatch at this particular point in time. I would like to interject my full attention was not on this monitor at all of of the time, because my primary responsibility was the insuring that communications were maintained during this period. I did make a telephone call during this period on the point - point telephone to inform our console an emergency did exist. Further I did have some discussion with technicians in back of the rack although my attention was focused essentially on the monitor during this particular period, 10 or 15 minute period after the first outbreak of the fire. I would judge that in the space of perhaps 2 to 3 minutes we did notice smoke coming out from around the hatch cover, smoke coming into the white room, from where I don't know, but presumably from beneath the spacecraft. But the visibility of the camera commenced with the injection of additional smoke in the area, we did observed on the other camera adjustable 8, smoke coming from beneath the capsule.

QUESTION: During the time from the initial awareness of a unusual situation can you give us a run down on what communication that you would have been monitoring at that time and as to also the quality of such communications.

ANSWER: As I said before I was monitoring my active normal channel Black 7 which is the communication channel and I did have several communications with my supervisor on the firing floor. I did also on the other ear have a monitor on Black 3 and I noted no anomalies or unusual conditions on transmission Black 3. During this particular period I was monitoring OIS Black 3 with one head set with the volume decreased since my primary attention was directed to activities on Black 7 on the communications channel. I did not detect or hear any indication of communications from the astronauts during this period. As time progressed there was considerable traffic on Black 3 which was completely readible.

QUESTION: Mr. Caswell, you stated that you were informed by Mr. Propst that there was a fire in the spacecraft and shortly thereafter you looked up at the monitor from camera 24. How would you describe the visibility, that clarity of visibility, into the spacecraft?

ANSWER: Initially during my first observations, first time I detected flames on the left side of the cockpit the clarity of view was quite good.

QUESTION: Mr. Caswell you also indicated that you observed movement by what appeared to be the helmet of the crew member in the center couch. Was this before or after you noticed the flame to the left side of the porthole?

ANSWER: This was after I first detected my attention was directed to the flames inside the spacecraft?

QUESTION: Mr. Caswell did you detect any further motion from inside the spacecraft?

ANSWER: Well let me put it this way, when we first noticed the flames at the cockpit it appeared on the left side facing the hatch cover. And it was during this initial period that we detected what we feel was motion by some movement of the helmet of the center crew member. And then seconds perhaps 10 to 15 seconds the flames had spread across the face.

I believe the question on the previous tape was how long was any motion detected after my initial observation of the fire. I noticed, as I previously stated, I did notice what appeared to be motion of the center crew man upon the initial outbreak of fire as my observation was directed to it. And then it appeared within perhaps 20 seconds, the flames had obscured a good view or any type of view of the crew member because they were spread across the face of the porthole. As time progressed, perhaps to 45 seconds to a minute, the intensity of the flames greatly increased to where they appeared to be white hot. This is confined to inside the spacecraft. Shortly thereafter we did detect smoke coming into the White Room, as we did detect smoke coming, what appeared to be coming from around the hatch cover. As I stated before, my initial attention was directed to the flames visible on camera 24 and shortly thereafter, possible within 15 seconds, I glanced to my right which depicted the monitor of another camera on adjustable 8 which in its view had a cable running across the upper right portion of the monitor which appeared to be commented to the spacecraft. I noticed that, and I remember it particularly, because the flames were not in any one point but were completely across this cable, flames licking up perhaps 3 - 4 inches from the top of the cable all the way across.

QUESTION: Mr. Caswell, can you give us an estimate of the time which elapsed from the first sign of fire that you saw in the spacecraft until you witnessed some activity outside the spacecraft and in the White Room area.

ANSWER: Yes, sir, it appeared to me, and I again am not, cannot be exact about this because I was performing other functions during this period, but it appeared to be quite a long period of time perhaps 3 or 4 minutes before we, or I, detected the entrance of anyone to the White Room which was I believe either one or two individuals, at least one individual who did come running in with what appeared to be in his hand a fire extinguisher. However, by this time the White Room was commencing to be obscured by smoke and motion of any kind was becoming increasingly difficult to detect. Prior to this time, I do recollect that we did see some activity on the other monitor or people moving about, apparently attempting to react to the emergency.

QUESTION: Mr. Caswell, can you furnish any further information to this panel which may be pertinent to the overall inquiry?

ANSWER: The only other condition that I can recall, there appeared to be as the fire progressed a significant reduction in visibility in the particular area in which the pad leader called for additional lanterns, emergency lights of any type that would assist. We dispatched an OIS technician from the ADCS area with approximately ten flashlights to the base of the umbilical tower elevator to hand to the next fireman going up.

#72
D. K. SLAYTON
FEBRUARY 8, 1967

QUESTION: Would you identify yourself for us by name and organization?

ANSWER: This is D. K. Slayton, Director of Flight Crew Operations, Manned Spacecraft Center, Houston.

QUESTION: Mr. Slayton, would you describe your functional responsibilities and location during the Plugs-out test conducted on Launch Complex 34 on January 27, 1967?

ANSWER: I had no functional responsibility. I was sitting at the Stony console with Capt. Roosa who was communicating with the Spacecraft observing what was going on from that position.

QUESTION: Mr. Slayton, as well as you can, would describe for us the events which you observed in the proper sequence or the sequence as well as you can establish it prior to, during, and just subsequent to the accident which occurred on the Complex on that date.

ANSWER: As I remember, we were in a ten-minute hold and had been for quite a time trying to establish adequate communications with MSO Building. Communications had been good from Roosa to the Spacecraft and still were. We finally agreed to pick up the count in spite of the relatively bad communications; and essentially, things were very quiet. I think I was sitting there reviewing some items from the flight plan when I heard a call of "fire" on the intercom. I wasn't sure who made it at the time. I immediately looked up at the TV monitor; and as best I remember, there was flame around the hatch at that time. Shortly thereafter, I heard another call of "Fire in the cockpit," or something similar to that. There were some other communications on the other loops superimposed on this, and I don't remember exactly what those all were. I did remember another call - the first one that sounded rather frantic to me that was something about, "We're burning up here, we need some help," or something to that effect. At that time, I attributed it to the Pad Leader. I thought this call came from him. Reviewing the tapes later on, I concluded that this last call was from Chaffee. At about this time, we had no further communications from the pad area. There seemed to be a fair amount of confusion and smoke and fire up there. I could see some people trying to get at the hatch door, and they had to back out. About this time, there was so much smoke that the TV monitor couldn't even pick up what was going on in the area. We settled down to try to establish communications with the Spacecraft. I think Roosa did try to call them on a few occasions with no response. Somewhere about this time it appeared it was a fairly serious situation, and I think I went over and talked to the Medics. I recommended that they get on out to the Pad area because they were probably going to be needed up there. The Spacecraft Test Conductor cleared them to go, and they left the Blockhouse. After they had been gone three or four minutes, I had a conversation with the, I believe, the Pad Safety Officer. He indicated things looked pretty bad from his communications. So, I elected to call Houston immediately and

get things cranked up back there just in case they were as bad as we thought they were. They did set up a command post immediately and got prepared to notify the families. I think it was about ten minutes later before we finally got positive confirmation. We did get a call right after the hatch was off that it looked very bad up there which is something like five minutes after the fire started. We could not confirm positively that the crew was dead. As soon as we did confirm that, I called Houston; and I went up to the Pad area sometime after completing my calls to Houston. I don't remember the exact time. It was after the Doctors had been up there. At the time I arrived, Dr. Kelly was there and Charlie Buckley. These were the only two people I recognized. I believe I was the first person to leave the Blockhouse behind the Medics to go up there. At the time I arrived at the Spacecraft, there was no....there was a very acrid smell of smoke with no visible smoke in the area - of course, no fire. When I looked into the Spacecraft, there was one arm hanging out which I understood, and there again I hesitate to indicate who told me this because I'm not sure, but somebody indicated that they couldn't and left them where they were. But, in any case, one arm was out at that time. Chaffee was in his couch in the right side where we'd expect him to be; and as close as I could determine, strapped down - had not attempted to unstrap himself. The other two crew members I could not identify them. I didn't know which was which. Both face plates were closed, I could determine that and locked. There was one head, in looking into the Spacecraft, the lower left side, and the other, I believe, was on the lower right side. There were two legs which the suit had both been burned off from, doubled up right in front of the hatch. It is very difficult for me to determine the exact relationships of these two bodies. They were sort of jumbled together, and I couldn't really tell which head even belonged to which body at that point. I guess the only thing that was real obvious is that both bodies were at the lower edge of the hatch. They were not in the seats. They were almost completely clear of the seat areas. I did not check switch position. I did note that the caution and warning panel lights were still burning. The two main lights, the ones between the seats. There is a cabin light between the center and the right seat and one between the center and the left seat. I believe both of these were still burning at that time. I guess at the time I went up there somebody had called from the Pad and said they needed some help or somebody to make a decision up there which is one reason I went up. One thing the people up there had already concluded is that they probably should not move the bodies or make any further attempts to do anything with the Spacecraft until some photographs were made, and I concurred in this. So, everything essentially stopped at that time. I think Buckley did call for a photographer to come up. I left before he arrived, and I don't know exactly what pictures he took. I did see some of them later on in the evening. I think the object here was to try to pin down body positions as well as we could on photographs and also try to get a little feel for the switch positions. The next time I saw the Spacecraft was after the bodies had been removed; and at this time, the lights were out. I looked inside; but again, I did not attempt to identify any switch positions. I figured this would be done adequately by other people. This concludes the statement furnished by Mr. Slayton.

#90
DARYL CAIN
NAA
FEBRUARY 20, 1967

SUBJECT: Observations

On January 27th while performing OCP K-0005 on S/C 017. Control room 2, TV displays were patched. So that on the Test Conductor Console we were watching the Command Module Hatch within the White Room on Pad 34. I witnessed the Outer Hatch and intermittantly the Boost Protective Cover Hatch installations. We, Gerry Schiendel the NASA Test Conductor and myself, noted and commented on the amount of activity with the White Room at this time. Later we observed the Center Astronaut thru the Hatch Window remove his left glove held just above his faceplate. I became occupied with a Spacecraft 017 power loss and did not witness him replacing it. I did comment that this appeared to be a poor time for this adjustment to Mr. Schiedel in that the suit would be discharging gas into the Cabin.

We handled our own problem and only intermittently watched the Spacecraft 012 test progress.

At about 1830 EST I observed the White Room TV block with a flash of light. When the visual presentation was recovered, I observed a flame at the base of the crew hatch similar to that of a burning candle. I assumed that there had been a flash fire in a quad and since no egress efforts were apparent, that the Crew was being left in the environmentally sealed Command Module where they would be safe. I observed the fire extinguished from outside the White Room at which time the White Room filled with smoke. I observed the Pad Leader open the Command Module Hatch only partially due to the personnel obstructing the White Room Camera and the excessive smoke. I assumed that the Crew did not egress because of this smoke.

Later television was shutdown and due to the nature of our Spacecraft test, I was astounded and speechless when advised that the Astronauts were fatalities.

At no time did I observe any fire within the Command Module.

/s/ D. Cain

#90T
DARYL O. CAIN
NAA
FEBRUARY 21, 1967

Would you identify yourself by name and organization?

ANSWER: I am Daryl Cain, C-A-I-N. I was the North American Test Conductor performing OCP 0005 on Spacecraft 017. We were conducting this test from Control Room No. 2. The Spacecraft was in the VAB.

QUESTION: Mr. Cain, would you describe your observations regarding the incident which occurred in reference to the plugs-out test being conducted on Complex 34 on January 27.

ANSWER: This evening we came on station, replaced the day shift and at approximately 6:00 in the evening, it was pointed out to me that the test was in a hold and

we had monitored the communications channel on our side tone basis. We were performing our own systems test. Spacecraft 017 experienced a power failure, but we were watching the television monitors on the Test Conductor's console. One of which was in the Blockhouse and one of which was pointing at the Spacecraft 012 within the White Room at the Spacecraft hatch. We, Gerry Schiedel, the NASA Test Conductor and I, commented when the hatches were installed, that the time to install the hatches seemed to be considerably less than what had been written into the test. We observed the hatch installation crew leave the White Room; and sometime after this, I don't know how long after this, we did observe the astronaut in the center crew couch, Ed White, remove his left-hand glove. Looking through the crew hatch, we remarked that the White Room TV was quite clear. We could see his face plate. I'd say about an inch in front of his face plate we could see his left arm from the wrist about halfway down the fingers. We watched him disconnect his cuff and pull his left glove partially off. I did not see him take it entirely off. I did not see him replace his glove; but shortly after that, his arm was no longer visible in the port. I did see his face plate a couple of times after that. This was sometime during the hold at T minus 10 minutes on Spacecraft 012. We were experiencing difficulties on Spacecraft 017, and I was just watching this out of the corner of my eye. At some time after this or after looking in the hatch there, we did see the TV camera in the White Room completely blank out, like someone had shined a very bright light into the lens of the camera. When the visibility in the White Room was regained, we saw a guttery-type flame at the base of the hatch, I would say probably about six inches high and mostly on the right-hand side, although it did go downhill toward the left-hand corner. We watched this for a period of time, I would estimate at about 2 minutes, then we saw what appeared to be a jet of carbon dioxide gas or white snow or something of that nature, from the lower right-hand corner of the white room, up across the hatch and the fire was extinguished, there were no more flames. After a short period of time the white room started to fill with smoke and we did comment that the inside of the crew compartment looked like a real fine place to be during this fire which appeared to be only on the exterior of the Service Module. Gerry, and I did comment that it did look like one of the quads had fired or that there was a fire underneath the Command Module which would cause Spacecraft 012 to lose its quad and the piece of the boost cover that covered the hatch. OK, we did assume that the fire was underneath the command module and from the nature of the flames burning upward. This is where we thought it was. On the cameras, we, I, did not observe any fire and I did see them jet some carbon dioxide up to the quad that was in the one camera. I don't recall which camera it was, but one of them was looking at a quad and we did watch the crew squirt the carbon dioxide on that quad. After a period of about 5 minutes we saw a number of personnel come up into the White Room with Gas Masks on their face, and there was so many people there that we did not observe, or could not observe the removal of the hatch. I don't know where the hatch went, I didn't see that. The personnel here after two or three minutes did leave the area, and the Camera did shine down into the Command Module for a period of time. We did not see any motion inside the Command Module, so we assumed that the Astronauts were safe, and that they were staying inside until the smoke in the White Room could be cleared. We commented back and forth to each other that this looked like still a very good place to be and based on my knowledge of the egress operation that the crew would have to come out, and hook up to the Portable Life Support System (PLSS). We thought that by their remaining in the spacecraft that they would keep the smoke in the White Room out of their suits.

After the men removed the hatch from the Command Module and cleared the area, there was no activity for a period of time there-in, the smoke was very heavy in the White Room and shortly thereafter the Camera looking down into the Command Module was extinguished, and we were unable to watch activities there anymore. We also lost the presentation for looking down into the blockhouse at the same time, but the other cameras remained on for a short period of time. All the other displays remained on for a short period of time. During our testing we had noticed earlier that communications channel which we were using, 214, down in the RF Room where the C14-442 was located did have a bad habit of over-modulating and causing disturbance of all the other channels that we were using. We had called the RCA people a few times to come down and see if they could fix this particular problem associated with the COMM. System testing. At that time, also checked out the communications in the Low Boy Console where Mr. Thomas and Charlie New, our communication engineers were sitting. We had commented particularly about this in that back when we were testing spacecraft 011, we experienced many difficulties with the voice communications between the MSO and this particular communications room that we were in; and the fact that the on occasion particularly at 7 in the morning and at 3 in the afternoon we had numerous occations to lose the PCM and had to hold on our testing at this particular time of the day. But we had experienced none of this difficulty in testing spacecraft 017 out at the VAB and thought this was quite an improvement in the communications. Shortly before the accident, we were working our spacecraft and all communications were wiped out in our system, due to somebody shouting very loudly and unintelligible to us and interfering with our conversation. I don't know exactly when this happened, but it was approximately 25 minutes after 6. Shortly after that however, we did have normal communication back with our people and it didn't affect us anymore. During the period of time at from about 6 to roughly 6:45 that evening, we had been watching the television presentation of the Spacecraft 012 test and on occasion when we were not too busy we would side-tone Channel 126, Black 3, which was the Command Channel for Spacecraft 012. I believe Mr. Byrd our Instrumentation man was the fellow that found that this channel was active in our control room and pointed this out to us, and on occasion when we weren't too busy we would listen in to see how they were doing. Mr. Byrd, I think, was the fellow that pointed out to me that they were in a time, T-10 minutes and holding. Just prior to the time that we watched Ed White take his glove off. Because of the activity in our spacecraft I was unable to sidetone Black 3, during that period of time, on a steady basis, I may have listened to it intermittently. I did not hear any of the words to put the hatch on, I did not hear the words to clear the area. I did not hear anything concerning the magnitude of the fire or egress operations or anything of this nature. I was really too engaged to get power back on Spacecraft 017. I think that was all that I saw and that just about ends it.

#108
DONALD R. JONES
KSC/NASA
JANUARY 24, 1967

Statement of Personal Observation of Activities at LC-34 During Plugs Out O.A.T. on January 27, 1967.

The undersigned was present in the LC-34 blockhouse on January 27, 1967, from approximately 12:30 P.M. until 9:30 P.M., in his official capacity of Chief, S-IVB Electrical System for the purpose of observing the test operation. Since he is not assigned a regular operating station, and due to the crowded condition of the blockhouse during test operations, the undersigned witnessed operations from the "VIP Room". The operation was observed over operational TV and monitored over O.I.S.

No major anomalies were noted during the period prior to the fire aboard the spacecraft. Minor difficulties were noted during the E.D.S. test. Minor or major difficulties were being experienced with spacecraft communication immediately prior to the spacecraft fire. The launch vehicle had been in a "Hold" condition for some length of time at T-10 minutes and the count was to have resumed shortly when the spacecraft fire was first noted.

The undersigned was monitoring O.I.S. channels Black 3 and Black 6 and observing the spacecraft on two TV monitors. One TV camera (A) was monitoring the spacecraft hatch, the other camera (B), the left rear of the spacecraft. The astronaut in the center spacecraft position could be observed on camera (A).

The first indication of the fire was noted as an increase in illumination within the spacecraft. Almost immediately the word "Fire" was heard over O.I.S. channel "Black 3" and was followed by an unintelligible transmission, thought to be a request for clarification of the first transmission. During the above a more noticeable increase in illumination within the spacecraft was noted. A third transmission stating "A Bad Fire in the Spacecraft" was heard and a tongue of flame noted between the center astronaut's helmet and spacecraft hatch window. The astronaut's left arm and then right arm moved toward the hatch top. At this point the interior of the spacecraft was illuminated with such brilliance that the camera picture was blacked out. A fourth transmission, thought to be a request to "Get us out of here" was not completely clear and may have in fact originated from another location. At approximately the time the hatch picture was blacked-out, flames were noted on monitor (B) from the lower portion of the spacecraft and exposed cabling begin to ignite. The above, it is felt, occurred within ten to fifteen seconds. Although repeated attempts to contact the spacecraft were heard, no further transmissions were recognized as coming from the spacecraft. Dense smoke which began following the external flames prevented a clear view of rescue attampts. It was felt, at the time, that due to the apparent intense heat and rapid progress of the fire that no successful rescue would be possible.

No attempt will be made to provide a detailed account of the rescue operation in this statement, however, it is felt that every attempt humanly possible was made to gain entrance to the spacecraft consistant with the circumstances. All personnel were requested to remain on station until officially released. All outside telephone communications were terminated. Personnel were officially released at approximately 9:30 P.M.

The undersigned has no personal knowledge of the spacecraft configuration at the time of the fire or as to the cause of the fire.

/s/ Donald R. Jones

C. G EYBEL
AND
J. M. RUBIO

On January 22, 1967, Mr. C. G. Eybel and Mr. J. M. Rubio, General Electric Company, Apollo Support Department, observed tests on AS-204 Space Vehicle in performance of a task assigned by NASA. They were physically located in the CIF Building and observations were made from 0800 to 1920. The purpose of the assigned task was to make observations in support of the NASA program to reduce human and procedural errors during pre-launch operations. The notes taken during the observations are as follows:

January 26, 1967 (Friday)
Test Plugs-Out Drop Test
1-20015-SA-204

	Test Pickup at 0600
0800	Begin Monitor
0820	T-5 hrs. 40 min. 00 sec. Begin Power Transfer - Prior to Spacecraft (S/C) Going on Internal Power Lou is Pad Leader
0825	Communications adding items (equip) to S/C - POWER IS ON Also S/C is through with command Carrier - RF Checks O.K.
0900	T-5-00-00 TC and EPS S/C confusion as to what 100 AMP circuit breaker "On" will do to S/C (5 mins. - No hold) TC wants breaker on and voltage reading taken (it was 31.5V yesterday) They must take off rear cover of GSE unit Pad Safety - Thundershowers this P.M. 31.2V Reading
0938	Close Circuit Breaker (100 AMP) Prepare for S/C Internal Power Transfer Pad Safety - Stop Grinding Operation on Service Structure
0945	Main Bus B dropped to zero during power transfer on S/C-trouble shooting - Potential Serious Problem (TP)
1003	Procedure was wrong - rewrite
1033	S/C Inst. Test complete
1035	S/C is down 1 hour - Problems with ECS
1040	Suit Compressor Check Complete (S/C)
1100	T-3 hours estimate 1 hour hold so ECS can support crew ingress (suit technician sets up S/C but can't if crew is in) holding
1110	S/C move switch position check list up 15 minutes earlier so crew will ingress smoothly. Also a sequence in document was entered twice - Line one out S/C switches must be set before test is picked up (and will take approximately 20 minutes)
1135	Must let S/C cool down - TD and suit technician Discuss off net
1200	Extend hold +20 minutes (still waiting for ECS) - then suit technician must still set switches which will be approximately 15-20 minutes
1209	ECS Complete

1210	Begin setting switches in S/C (Confusion in switch setting)
1220	T-3:00:00 and counting
1233	Switch settings complete
1235	Suit technician out of S/C
1240	Astronauts departing for pad
1245	Crew leaving Astronauts Quarters on way to Pad 34.
1254	Couches almost set up crew approaching pad
1256	Crew at S/C level
1256	T-2-22-35 - Begin crew ingress Command Pilot (Grissom)
1303	Command Pilot - Smells funny odor in suit (like buttermilk)
1305	Command Pilot Secured
1306	Senior Pilot (Ed White) begin ingress preparation (Gus wants an air sample taken)
1308	Chaffee begin ingress
1318	Ingress Complete
	Bendix Environmental Engineer to take 0_2 sample.
	Pad Safety - 20% probability of elect.' activity in 2 hrs.
	Will hold at T-2:00:00 until air sample is taken
1320	T-2 hours and holding
	Chaffee is on board (over net - not TV)
	Crew didn't bring check lists with them - Pad Leader gave them set - its extensive
1330	Estimate 1½-2 hour hold to take air sample. Also 0_2 sample to see it meets specification Type 11-B
1403	Per George Page - Send for second crew to take sample.
1405	Extend hold 20 minutes
	Found changes to be made in check list.
1414	Begin taking sample - (original crew)
	Take from Gus loop - through helmet fitting -
	Inflate the watermelon
1424	Sample Complete (Bendix)
	Reset Environmental Switches in S/C
	Begin suit circuit check
	Estimate 5 minutes
	C. Kraft and G. Page - Whose causing most holds -
	Houston or MSC - facetious
1430	Extend hold 10 minutes - ECS
1436	Begin suit circuit purge (sample) 98% - Go
1440	ECS Complete
1442	T-2 hours and counting
1445	Rain expected in 1 hour
1449	T-1:53:15 Closing Hatch
	Discrepancies between crew check list and S/C switch settings - Can't make run in present configuration
1458	Begin LV EDS Check
	Standby - Communication Problems - Very noisy and cutting out over net
	S/C VHF AM - Switch position was incorrect
1522	Begin Cabin Purge
1540	Abort light not received (S/C)
	Trouble Shoot
1542	T-60 and counting - EDS check not finished
1545	Abort light o.k. - Switches were not in correct position for test
1552	T-50 and holding estimate 15 minutes
1555	Did not get reset verify light in ECS check - standby

1557	EDS test is complete
	(off station)
1620	Still holding - Not getting right concentration - (Bad Analyzer) Cabin
1635	Start cabin leak check (purge is ok)
	Estimate 30 minutes for completion - including hatch closure - will then be in T-50 configuration.
1655	Ready for hatch closure. Leak rate is zero
1702	Hatch secured - Ready to pick up
1703	T-50 and counting
1736	S/C has communication problem
1738	T-15 and holding
1750	(Command Pilot's Cobra Cable) Suspect
1758	Command Pilot's transmitter and receiver VHF fuse switch appears bad
1800	Changed Comm Configuration in S/C
	It still isn't too good
1800	Trouble shoot after run
	Prepare Static Fire
1805	Set up switches in S/C and Static Fire
1813	Test complete -- Ready to pick up
1815	T-15 and counting
1820	T-10 and holding
	Communications Problem again
1832	Fire in S/C (Voice from S/C)
1835	3 arrive at White Room
	Masks on
1838	Pad Leader and crew can't see to get Astronauts
	Pad Leader can feel Astronauts but can't see them
1844	Pad Leader - I better not describe what I see
1845	Pad Leader - Ambulance is all I need at the White Room
1855	Pad Leader 2 - Pad Rescue have smoke casualties
	T/C - Several ambulances on way
1858	T/C - Batteries that couldn't be disconnected were ones that caused the problem

Panel 150 could not be reached by Pad Leader to remove power from spacecraft

1920	Leave CIF

A. E. JOROLAN
NASA/KSC
FEBRUARY 15, 1967

BLOCKHOUSE: Personal Statement of Observation made during the AS-204 Plugs Out (OAT) (Referencing Spacecraft Accident).

1. During extended countdown hold at T-10 -- (purportedly for spacecraft communication difficulties) the undersigned was at the assigned position in the Launch Vehicle Operation (LVO) Blockhouse measuring station on the firing room floor.

2. Because of the hold, the undersigned was listening to the spacecraft communication channel (believed to be Black 3) to determine the hold status.

3. The communications between the astronauts and the ground appeared to be intermittant. The command pilot and pilot transmissions were okay, but the senior pilot's transmissions were sporadic.

4. A few jibes from the astronauts to the ground positions were made.

5. During a lull in the voice transmissions, the undersigned heard one of the astronauts say in a slightly high tone "Hey, there's a fire in here". The undersigned identifies the voice with that of the pilot, Roger Chaffee. This was predicated on his previous transmissions. The pilot's voice was pitched higher than the other crew members.

6. A few seconds later, the undersigned thinks that the same crew man yelled over the net "Hey, get us out of here".

7. All communications from the astronauts ceased, although repeated attempts to raise the spacecraft were made from the blockhouse.

8. The undersigned immediately looked at all the strip charts and other measuring equipment. All readouts were nominal. A further determination was made to see if the transducers and/or sensors could possibly indicate any anomalies in the spacecraft stages. The answer was, no. During these observations, power was removed from the Launch Vehicle stages and the strip charts no longer indicated data.

9. The undersigned then went to look at the nearest TV monitor. The monitor presented a dark picture with two distinct tongues of fire emanating from an undefined object. The fires appeared to be positioned at 11 and 7 o'clock on the screen.

10. The undersigned remembers that someone was trying to increase or decrease the Environmental Control System (ECS) output into the spacecraft. At one time, the output was increased, but it appeared that the test conductor and the Service Structure white room personnel were not sure whether this was aiding or hindering the fire. Therefore, the ECS output was turned down.

11. Since the Firing Room floor was getting somewhat crowded, I entered the LIEF or VIP room, sat down, listened over the net and watched the TV monitor for the remainder of the time.

12. The few items of conversation remembered just after the initial fire was:

(a) No visibility on the platform because of smoke.

(b) Request made by the pad leader for lights, id. battle lanterns.

(c) The hatch was finally opened (time frame unknown) but no access or visibility into the spacecraft was possible because of heat and smoke.

13. After continuous cooldown with the carbon dioxide bottle, ingress was finally made. The report was that nothing could be done for the astronauts.

14. The next step was to try and save the spacecraft and associated sub-stages. This could not be done because the control signal lines for bringing spacecraft power down were probably damaged by the fire. Therefore, the spacecraft panel lights were still on despite ground indications that all power was off.

15. Attempts to turn off power from the spacecraft failed because the astronaut(s) were in the way of the circuit breakers.

16. It must be noted that as much as 15 minutes elapsed between the breakout of the spacecraft fire and the clearing of the Service Structure personnel.

17. It was unusual that (to my knowledge) no LVO personnel stayed to look at the data.

18. The use of the Black Phone was not prohibited until an hour or more after the accident.

19. Difficulty was encountered when various key personnel attempted to communicate over secure communication nets.

/s/ A. E. Jorolan

#62

LEROY G. WEST

NAA

FEBRUARY 6, 1967

On 1/27/67, we were checking out S/C 012. Every operation was performed per OCP-K-0021. To the best of my ability to recall, these are the only things that were abnormal:
Some of the crew systems equipment was stored in plastic bags. Because the storage compartment was not in the S/C at that time, the equipment was left in, but the plastic bags were removed. There was also a bundle of electric wiring lying on the floor to the right of the Senior Pilot. One end was connected, but the outer end was not. Also, the Command Pilot said that he had a sour buttermilk smell in his suit. So, we called Bendix in to take a watermelon sample.

During cabin purge, there was a real strong smell in the White Room coming from a tee fitting we had hooked on the return side of the S/C. We first purged for twenty minutes and were unable to get above 74% O_2 on the Beckman analyzer. We then purged for another ten minutes. We also noticed that smell we had in the White Room was getting weaker. At this time, we took another sample after changing analyzers and were able to get 93% O_2 So, we picked up an Interim Discrepancy Report (IDR) and went on with hatch closeout. The inner and outer hatch fit real good, but we were unable to lock the Boost Protective Cover (BPC). So, we took another IDR and just set the BPC in place and reported that it was not locked. At this time, I left the Pad.

/s/ LeRoy G. West
NAA
February 6, 1967

Witness Statement on PANEL #12

Att: Mr. C. J. McNamara

On 1-27-67 after Crew Ingress I noticed that the Gas chromatograph was not in the spacecraft, and in its place was some flight crew systems equipment stored on the shelf. The items were stored in plastic bags. I questioned it and was told to remove the equipment from the bags and place them back on the shelf. While I was doing this I noticed an electric cable on the right hand side of the shelf on Panel 12. It also had a bag over it so I picked the cable up removed the bag and placed the cable back on the shelf in the same place I picked it up. I passed the bags out of the spacecraft.

#10

J. A. BURCH

PAA FIRE DEPARTMENT STATEMENT

JANUARY 27, 1967

I was on the first fire run vehicle to Complex 34 when we responded to the alarm. On entering the eighth adjustable on Complex 34, there was a lot of smoke and burning wires, no flame. The men were yelling the astronauts were still inside the module. I worked my way around to the hatch of the module. The smoke and heat were thick and there was one man trying to get the hatch cover off. I gave him a hand but we could not get it off.

I had to go back outside with the other man to get a gas mask. Then returning he tried to tell me how to remove the hatch. We were having a hard time trying to breathe with the gas mask on. It got to be too much for the other man and he had to leave. I pulled on the hatch and turned it sideways and it came out.

I could not see much inside - I asked for a light. With the light I looked all around inside - I couldn't tell anything. I started to pull some of the burned looking "stuff" in front of me. I must have pulled part of the suit off one of them. There was a pair of legs in my hands. I felt to see if the skin was coming off. It was not so I grabbed both legs and tried to pull him out. I couldn't move him. I then took a good look at what I had uncovered and determined they were all dead. I then told the man outside on the headset that they were all dead and there wasn't anything we could do to help them. I advised him that we needed a smoke ejector. Everything was then under control.

QUESTION: Sir, would you give your name, organization and give us a short discussion of your actions as you arrived at the top of the gantry on Pad 34.

ANSWER: James A. Burch, Pan American Fire Department. From the time we received the call, I would estimate that we got the the gantry in around five or six minutes. We took the slow elevator up. The fast elevator was out. It took us approximately two minutes to reach the top of the gantry. Assistant Chief, McMillan, Bob Batts the Crew Chief, Rector - Fire Fighter, Dawes the Fireman and myself reached the top. As we reached the top, I went around to the side of the capsule where the man on the headset was hollering that the men were still inside the capsule. I was not sure who was inside, and I asked him specifically who was inside the capsule. He said that the astronauts were still inside. There were about five or six technicians standing on the gangway; and as I looked into the hatch, there were two men coming out that had been working on the hatch. Me and one other fireman, I'm not sure who he was - it, I believe, was Rector, we proceeded in without a mask and tried to take the hatch cover off. It was loose but was still intact. As we picked it up and down, we couldn't move it. We jammed it back and forth quite a few times, but the smoke was thick and we did not know how to take it off. I would say we stayed in around thirty seconds before we had to leave to get a mask because the smoke was too thick. Upon going out on the gangway, one of the men out there gave me a mask - gas mask - I put it on and entered the room again with one of the technicians. We then tried again to take the hatch cover completely off. He was trying to tell me that you had to drop it down and push it in and turn it sideways to get it off. We worked quite a few minutes on trying to do that. It seemed like minutes....I'm not sure how long it was. But, anyway, we could not get it; and we were choking up considerably on the smoke and fumes that were in there. We then went back outside, got a breath of air and then returning back, we tried again to get the hatch cover off. I know I choked up two or three more times, and the man that was with

me also choked up. It wasn't but just a few seconds that he choked up so bad that he turned around and left. Frantically, I was still working on the hatch cover. I was shaking it, turning it, doing everything in the world I could to get it off. Then, just all at once it seemed to fall back on me; and as I turned with the hatch in my hand - halfway off - someone was there to grab hold of one of the handles; and we set it back away from the hatch. Then, I took a flashlight, I laid over inside the capsule trying to see the bodies or anything that I could see. The inside was burnt considerably, there were wires hanging down. I shined the light completely around inside the capsule, and I couldn't see anything except burnt wires hanging down. I then backed out, told the man on the headset, I said, "There's no one in there." He said, "There has to be someone in there. They are still in there. Get them out." I re-entered, looked around again; and I still didn't see anyone but there under me was a boot. I grabbed the boot, pulled it, it came off. There wasn't anything there except just a black mask. Then, I just grabbed an armload of I don't know what; but it seemed like it was coming loose. The first thing I knew I had a pair of legs in my hand. The hair was still intact on the legs. They were not burnt bad. In fact, they were not burnt at all it looked to me like. I checked to see if the skin was going to slip, it wasn't so I reached my arm through both legs, under both legs, and pulled up just as hard as I could pull. The body moved probably six inches or less, but I knew I couldn't move him out. I then backed off to see just exactly what I did have. I could see that the, just the knees were sticking up on the only person that I could recognize. As far as the rest of it, it was just a black mass and I couldn't tell which way the bodies were laying or anything. I then backed out. I told the man on the headset, "They are all dead, the fire is extinguished. The only thing we need now is to get the smoke cleared out, and then we can tell more about it. As I leaned in with the light, I crawled into the hatch and went as far as my knees, I looked around with the flashlight all the way to the back of the capsule; and I could not see anyone. At the time, the knees of the top man must have been under my stomach because I drew myself back and just grabbed a hand full of which just had to be a burnt suit and came up with a pair of knees. They had to be right at the hatch. As I leaned in, I must have been lying right on top of the knees. I could not see anyone in the back, but I could see full vision all the way to the back of the capsule.
This ends the statement of Mr. Burch.

#14
J. C. MOONEY
PAA
JANUARY 27, 1967

At approximately 6:27 p.m., Eastern Standard Time, the Egress Team was preparing for the egress drill on Complex 34.

Upon receipt of the alarm via the radio from Pad Safety Office, Complex 34, I started to respond to the Complex in No. 250 vehicle. Before I reached the Dispensary, the Superintendent, Range Operations called on the radio and requested the Egress Team. I radioed the Station and requested all 3 units prepare to roll. I turned around and proceeded to the Station and parked No. 250 and entered No. 3 M113 which was ready to roll at that time. Time elapsed was about 2 minutes. We then proceeded to the Complex led by Egress member J. Blankenship in P-6 truck No. 16.

I called the S.R.O. on Fire Crash Net and advised him our 3 units were responding. Upon arrival at the south gate of the Complex, we again notified the S.R.O. of our location. We proceeded to the base of the umbilical tower and parked in our designated area. Egress members Blankenship, Crowl, and myself proceeded up the elevator to the 8th adjustable level. Upon arrival at the spacecraft, I met J. Blankenship coming back stating that we needed Scott Air Paks. They were ordered from below. I then met the Assistant Test Conductor from North American Aviation and asked him what condition existed. He stated the spacecraft was burning and he thought that we had 3 dead people in there. Upon approaching the spacecraft hatch we found it almost impossible to remain without breathing equipment, which had not arrived yet.

The hatches were removed and all 3 bodies could be observed through the hatch. They all appeared badly burned and no movement was visible. I then contacted the Test Conductor again and asked about the status of the spacecraft and the Launch Escape System. He informed me that they could not shut off spacecraft power since it was on internal power and that the Launch Escape System was armed. I instructed all my personnel to not to try to enter the spacecraft until our Pad Safety Officer and Spacecraft Test Conductor had assured us that all power was off and the Launch Escape System was disarmed.

We attempted to remove smoke and fumes from Environmental Chamber by disconnecting the A/C duct and using it to push the smoke out. Blankenship was notified to call Crash and have Chief Hipp notified.

We were told by Spacecraft Test Conductor and Astronaut Doctor to begin removal of astronauts, but found that power was still on and we moved back until Chief Hipp arrived. We then checked with Pad Safety Officer, Test Conductor, etc., and determined that we would wait until given permission to enter the spacecraft. It was given by the Doctor. Then Chief Hipp and we proceeded to remove Ed White from the spacecraft. He was wedged in under Gus Grissom and with his back to the east wall of the spacecraft lying on his left side. We removed White with a good deal of difficulty and took him to the ambulance waiting at the base of the base of the structure. We then went back to the spacecraft and removed Gus Grissom and placed him in an ambulance, returned to the spacecraft and removed Chaffee. Notified Pad Safety and Security that we had completed our assignment and were returning to Headquarters at 2:30 a.m., EST.

All persons involved performed their duties flawlessly and without any questions at any time. Many suggestions were made and tried; some with a great deal of success.

All members are to be congratulated for their tireless efforts. We were only deeply sorry that we could not do more for all involved.

U.S. GOVERNMENT PRINTING OFFICE : 1967 O - 261-103