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RA-E07-086

Sent To: NEW MEXICO ENVIRONMENT DEPARTMENT
ATTN MR TED SCHOOLEY
AIR QUALITY BUREAU
NEW SOURCE REVIEW UNIT

Street, Apt. No.; or PO Box No.: 2048 GALISTEO

City, State, ZIP+4: SANTA FE NM 87505

PS Form 3800, June 2002 — See Reverse for Instructions

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
White Sands Test Facility
P.O. Box 20
Las Cruces, NM 88004-0020

September 6, 2007

Reply to Attn of: RA-E07-086

New Mexico Environment Department
Attn: Mr. Ted Schooley
Air Quality Bureau
New Source Review Unit
2048 Galisteo
Santa Fe, NM 87505

Subject: Technical Revision Request for Area 300 Altitude Simulation System; NMED Permit No. 629-M-3; AIRS No.35-013-0004

The NASA White Sands Test Facility (WSTF) requests a technical revision for the subject permit pursuant to NMAC 20.2.72.219.B(1)(a). This revision request is to change the recordkeeping description for data collection pursuant to permit Conditions 2(e)(3) and 9(c), from the specific document cited (TPS 3-ALT-930165-1), to an equivalent site documentation system.

Per your verbal guidance, the NMED form *Universal Air Quality Permit Application & Notice of Intent Application* is being submitted for this technical revision request. Only Part I (Sections I-A and I-B), Attachment A, and the Certification have been completed.

In accordance with Part II of the application, the following submittals are enclosed:

Enclosure 1 – One hard copy of original signed and notorized application form;
Enclosure 2 – Two CD copies of application form (one copy in MS Word and one in PDF);
Enclosure 3 – Check for permit filing fee in the amount of five hundred dollars ($500);
Enclosure 4 – Example of ammonia emissions calculation document used for permit Condition 2(e)(3).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

To the extent that information has been submitted electronically, I acknowledge that NMED will rely solely on the electronic information as accurate and complete information and that it is this data that will be used for compliance and enforcement purposes pursuant to the provisions set forth in the NASA WSTF Final Project Agreement. If you have any questions or comments concerning this submittal, please call Mr. Mike Zigmond of my staff at 505–524–5484.

Original Signed By:

Radel Bunker-Farrah
Environmental Program Manager

Enclosures

bcc:
EASI Team/A. Armstrong

RA/RBunker-Farrah:btm:9/6/07:5733

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ENTERPRISE ADVISORY SERVICES, INC.

OUR REF. NO.	YOUR INVOICE NO.	INVOICE DATE	INVOICE AMOUNT	AMOUNT PAID	DISCOUNT TAKEN	NET CHECK AMOUN
027294	PERMIT	08/03/07	500.00	500.00	0.00	500.0
TOTALS			500.00	500.00	0.00	500.0

ENTERPRISE ADVISORY SERVICES, INC. 50611

OUR REF. NO.	YOUR INVOICE NO.	INVOICE DATE	INVOICE AMOUNT	AMOUNT PAID	DISCOUNT TAKEN	NET CHECK AMOUNT
027294	PERMIT	08/03/07	500.00	500.00	0.00	500.00
TOTALS			500.00	500.00	0.00	500.00

50611

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PAY
TO THE
ORDER OF

NMED (AQB) Permit No. 629-M-3
Air Quality Bureau
New Source Review Unit
2048 Galisteo
Santa Fe, NM 87505

TWO SIGNATURES REQUIRED OVER $5000.00

Robert E. Carter
Gail Hall

MP

⑈000506 11⑈ ⑆06200008 0⑆ 2000709886 264⑈

Details on back.
Security Features Included.
081002/12-03

Mail Application To:		
New Mexico Environment Department Air Quality Bureau New Source Review Unit 2048 Galisteo Santa Fe, NM 87505 Phone (505) 827-1494 www.nmenv.state.nm.us/aqb		AIRS No.:

Universal Air Quality Permit Application & Notice of Intent Application

to Construct or Modify Sources of Air Emissions

Acknowledgements:

[**X**] I acknowledge that a pre-application meeting is available to me upon request

[**X**] $500 Permit Filing Fee enclosed, Check No.: 50611_____

[ ] This facility meets the applicable requirements to register as a Small Business

Part I – General Information

I-A: Company Information

1	Company name: NASA - White Sands Test Facility (WSTF)		Date application notarized: 9/11/2007
2	Facility name: Area 300 Altitude Simulation System, Permit No. 629-M-3, AIRS No. 35-013-0004		SIC code (4 digits): 9661
3	Company mailing address: P.O Box 20, Las Cruces, New Mexico 88004		
4	Company contact person: Mike Zigmond		Title: Environmental Engineer, P.E.
5	Phone No: 505-524-5484	Fax: 505-524-5798	E-mail: mzigmond@wstf.nasa.gov
6	Preparer/Consultant: Jorge Uribe, Regulatory Senior Principal, North Wind, Inc. (NASA-WSTF) Address: P.O. Box 20, Las Cruces, New Mexico, 88004		
7	Preparer/Consultant phone: 505-525-7820		E-mail: jorge.a.uribe@wstf.nasa.gov

I-B: Current Facility Status

1	This application is for: ☐ NOI ☐ New Facility NSR Permit ☐ Modification to an existing facility [**X**] Technical Revision	
2	Has this facility already been constructed? [**X**]Yes ☐No	If yes, is it currently operating in New Mexico? [**X**]Yes ☐No
3	Is the plant currently shut down? ☐Yes [**X**] No	If yes, give month and year of shut down (MM/YY):
4	Was this facility constructed before 1972 and continuously operated since 1972? ☐Yes [**X**] No	
5	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐Yes [**X**] No	If yes, the permit No. is:
6	Has this facility been issued a No Permit Required (NPR)? ☐Yes [**X**] No	If yes, the NPR No. is:
7	Has this facility been issued a Notice of Intent (NOI)? ☐Yes [**X**] No	If yes, the NOI No. is:
8	Does this facility have a construction permit (20.2.72 NMAC)? [**X**]Yes ☐No	If yes, the permit No. is: 629-M-3
9	Is this facility registered under a General permit (GCP-1, GCP-2)? ☐ Yes [**X**] No	If yes, the register. No. is:

10	Is this a PSD major source? ☐ Yes [**X**] No ☐ Unsure.	Is this a Title V major source? ☐ Yes [**X**] No ☐ Unsure
a	Is this a major modification under the PSD rules (20.2.74 NMAC)? ☐ Yes [**X**] No ☐ Unsure	
11	If *Yes* or *Unsure* to any of the questions in question No. 10, contact the AQB to see if a pre-application meeting is required.	

Table I-B: Current Facility Status (continued)

12	What is the facility's maximum input capacity, specify units (reference here and list capacities in Attachment N if more room is required)			
a	Current	Hourly:	Daily:	Annually:
b	Proposed	Hourly:	Daily:	Annually:
13	What is the facility's maximum production rate, specify units (reference here and list capacities in Attachment N, if more room is required)			
a	Current	Hourly:	Daily:	Annually:
b	Proposed	Hourly:	Daily:	Annually:

Table I-C: Facility Location Information

1	Section:	Range:	Township:	County:	Elevation (ft):
2	UTM Zone: ☐12 or ☐13			Datum: ☐ NAD 27 ☐ NAD 83 ☐ WGS 84	
	UTM E (to nearest 10 meters):			UTM N (to nearest 10 meters):	
a	**AND** Latitude (deg., min., sec.):			Longitude (deg., min., sec.):	
3	Name and zip code of nearest New Mexico town:				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary):				
5	The facility is _____ (distance) miles _____ (direction) of _____ (nearest town).				
6	Status of land at facility (check one): ☐Private ☐Indian/Pueblo ☐Government				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2) of the property on which the facility is proposed to be constructed or operated:				
8	Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) from other states, Bernalillo County, or a Class I area (see www.nmenv.state.nm.us/aqb/modeling/class1areas.html)? ☐Yes ☐No (20.2.72.206.A.7) If yes, list all:				
9	Name nearest Class I area:				
10	Shortest distance from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters):				

Table I-D: Proposed Operating Schedule (Note: the operating schedule (D1, D2) shall become a condition of the permit)

1	Facility **maximum** operating ($\frac{hours}{day}$):	($\frac{days}{week}$):	($\frac{weeks}{year}$):	($\frac{hours}{year}$):		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{hours}{day}$)? Start:	☐AM ☐PM	End:	☐AM ☐PM		
3	Month and year of anticipated start of construction:					
4	Month and year of anticipated construction completion:					
5	Month and year of anticipated startup of new or modified facility:					
6	Will this facility operate at this site for more than one year? ☐Yes ☐No					

Table I-E: Other

1	Is this application in response to a Notice of Violation (NOV)? ☐Yes ☐No	
a	If yes, NOV date:	NOV Tracking No:
2	Is air quality dispersion modeling being submitted with this application? ☐Yes ☐No	
3	Does this facility require an "Air Toxics" permit under 20.2.72 NMAC, Part IV, Tables A and/or B in Part V? ☐Yes ☐No	
4	Will this facility be a source of federal Hazardous Air Pollutants? ☐Yes ☐No	
a	If yes, list applicable subparts in 40 CFR 61 & 63:	

Part II – Submittal Requirements

The 20.2.73 NMAC NOI application or the 20.2.72 NMAC permit application package shall consist of the following:

1) One hard copy **original signed and notarized application package** printed double sided
2) If the application is for a NSR permit or permit modification, include one working hard copy for Department use
3) The entire NOI or Permit application package, including the full modeling study, should be submitted electronically on compact disk(s) (CD). The base number of CD copies required is two, with additional copies as specified below.
4) If air dispersion modeling is required, include one additional electronic copy of the air dispersion modeling including the input and output files. The dispersion modeling *summary report only* should be submitted as hard copy(ies) unless otherwise indicated by the Bureau. The complete dispersion modeling study, including all input/output files, should be submitted electronically as part of the electronic submittal.
5) If subject to PSD review under 20.2.74 NMAC (PSD) include,
   a. one additional hard copy and one additional CD copy for US EPA,
   b. one additional hard copy and one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
   c. one additional hard copy and one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.

Electronic Submittal Format:

1) All required electronic documents shall be submitted in duplicate. One copy should be in a Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format with the number of additional hard copies corresponding to the number of CD copies required.
2) Submit the application form and all MSWord formatted attachments as a single electronic file on the CD(s).
3) All documents shall have the electronic file names also displayed in the lower left hand of each page. The page numbers shall appear on the lower right hand of each page. The file names shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: "A-3423-FacilityName". The format of electronic Attachments document that are not in MS Word format shall be in the format: "A-3423-G-Description", where "G" stands for Attachment G (public notice).

Part III – Production and Control Equipment

Table III-A: Regulated Equipment (Unit and stack numbering must correspond throughout the application package.)
Note: If applying for a NOI under 20.2.73 NMAC, equipment exemptions under 2.72, 202 do not apply, and all equipment should be listed here.

Unit No.	Date[1] of Manufacture /Reconstruction. / Date[1] of Installation/ Construction	Manufac-turer	Model No. / Serial No.	Source Description / Source Classification Code (SCC)	Capacity (Specify Units)	For Each Piece of Equipment, Check One	Applicable State Regulation(s) 20 2.X, …	Replacing Unit No.
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		

[1] Date format is MM/DD/YY

Table III-B: 20.2.72.202.B NMAC Exempted Equipment (If exempt under 20 NMAC 2.72.202.B.5, list emission rates in Table IV-A.)

Unit & stack numbering must be consistent throughout the application package. This table is applicable only if applying for a 20.2.72 NMAC permit. 20.2.72.202 NMAC Exemptions do not apply to NOI facilities under 20.2.73 NMAC, per Exemptions Policy 02-012.00 (see http://www.nmenv.state.nm.us/aqb/permit/aqb_pol.html) for more details:

Unit No.	Date[1] of Manufacture /Reconstruction. / Date[1] of Installation/ Construction	Manufac-turer	Model No. / Serial No.	Type (Source Description)	Capacity (Specify Units)	For Each Piece of Equipment, Check One	Site Specific 20.2.72.202 NMAC Exemption (e.g. 2.72.202.B.5)	Other Required Information
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		
						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To be Modified ☐ To be Replaced		

[1] Date format is MM/DD/YY

Table III-C: Emissions Control Equipment (Additional information)

(Unit and stack numbering must be consistent throughout the application package.)

Unit No.	Control Equipment Description	Controlled Pollutant(s)	Controlling Emissions for Unit(s) No.	Efficiency % Control by Weight	Estimation Method

Only list control equipment for TAPs if the TAP's maximum uncontrolled emissions rate is over its respective threshold as listed in 20.2.72 NMAC, Subpart V, Tables A and B.

Part IV - Emissions

Table IV-A: Maximum Uncontrolled[1] Emissions Under Normal Operating Conditions. List Hazardous Air Pollutants (HAP) & Toxic Air Pollutants (TAPs) in Table IV-F. Unit & stack numbering must be consistent throughout the application package. Include tank-flashing emissions estimates (20.2.72.203.A.3 NMAC) ☐ **This Table was intentionally left blank because it would be identical to Table IV-B.**

Unit No.	NOx		CO		VOC		SOx		TSP[2]		PM10[2]		PM2.5[2]		☐ H_2S or ☐ Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals →																

[1] **Maximum Uncontrolled Emissions** are the uncontrolled emissions at maximum capacity, prior to (in the absence of) pollution control equipment. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless otherwise approved by the Department.

[2] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations.

Table IV – B: Requested Allowable Emissions

Unit and stack numbering must be consistent throughout the application package. Include tank-flashing emissions estimates.

Unit No.	NOx		CO		VOC		SOx		TSP[1]		PM10[1]		PM2.5[1]		☐ H_2S or ☐ Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals →																

[1] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations.

Table IV – C: Maximum Emissions during Malfunction, Startup, and Shutdown.

This table must be filled out for PSD Major facilities, for facilities with flares, and upon written request by the Department (20.2.72.203.A.3 NMAC). Unit and stack numbering must correspond throughout the application package.

Unit No.	NOx		CO		VOC		SOx		TSP[1]		PM10[1]		PM2.5[1]		☐ H_2S or ☐ Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals →																

[1] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations.

Table IV-D: Stack Exit and Fugitive[1] Emission Rates (Requested Allowables) List Toxic Air Pollutants (TAPs) and Hazardous Air Pollutants (HAPs) in Table IV-F (Unit and stack numbering must correspond throughout the application package). Include tank-flashing emissions estimates.

☐ **I have elected to leave this table blank because this facility does not have any stacks/vents that are split or combine with any of its sources and the emission rates match Requested allowable emission rates already stated in the above tables.**

		TSP		PM10		PM2.5		NOx		CO		VOC		SOx		☐ H_2S or ☐ Lead	
Stack No.	**Unit No.(s) from Table III-A**	**lb/hr**	**tons/yr**	**lb/hr**	**tons/yr**	**lb/hr**	**tons/yr**	**lb/hr**	**tons/yr**	**lb/hr**	**tons/yr**	**lb/hr**	**tons/yr**	**lb/hr**	**tons/yr**	**lb/hr**	**tons/yr**
Totals →																	

[1] List all fugitives that are associated with the normal, routine, or non-emergency operation of the facility.

Table IV-E: Stack Exit Conditions: List Toxic Air Pollutants (TAPs) and Hazardous Air Pollutants (HAPs) In Table IV-F (Unit and stack numbering must correspond throughout the application package.) Include tank-flashing emissions estimates. (Table Not Applicable for Fugitives)

Stack No.	Unit No.(s) from Table III-A	Orientation (H=Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter or L ×W (ft)
						(acfs)	(dscfs)			

Table IV-F: Stack Exit Emission Rates for HAPs and TAPs (Describe Stack Exit Conditions in Table IV-E)
(Unit and stack numbering must correspond throughout the application package.) Include tank-flashing emissions estimates

Stack No.	Unit No.(s)	Specify the name of the TAP as listed in 20.2.72.502 NMAC and HAP as it appears in Section 112 (b) of the 1990 CAAA. 20.2.72.402.C NMAC lists sources that are exempt from the permitting requirements of 20.2.72.400-499															
		HAP ☐ TAP ☐		HAP ☐ TAP ☐		HAP ☐ TAP ☐		HAP ☐ TAP ☐		HAP ☐ TAP ☐		HAP ☐ TAP ☐		HAP ☐ TAP ☐		HAP ☐ TAP ☐	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TOTAL →																	

Only list TAPs that have a maximum uncontrolled emissions rate greater than the threshold emission rate listed in 20.2.72.502, Tables A and B

Part V – Fuel

Table V-A: Fuel Characteristics and Usage (Unit and stack numbering must correspond throughout the application package.)						
		Specify Units				
Unit No.	**Fuel Type (No. 2 Diesel, Natural Gas, Coal, …)**	**Lower Heating Value**	**Hourly Usage**	**Annual Usage**	**% Sulfur**	**% Ash**

Part VI – Material Storage and Handling

Table VI-A: Liquid Storage Data[1] Use additional sheets if necessary. Unit and stack numbering must correspond throughout the application package.
Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories

Tank No.	(SCC)	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/(lb*mol))	Average Storage Conditions		Max Storage Conditions	
						Temp-erature (°F)	True Vapor Pressure (psia)	Temp-erature (°F)	True Vapor Pressure (psia)

[1] If tank is to be used for storage of different materials, list all the materials, run the newest version of TANKS on each and use the material with the highest emission rate to determine maximum uncontrolled and requested allowable emissions rate.

Table VI-B: Liquid Storage Tank Data (Use additional sheets if necessary.) (Unit and stack numbering must correspond throughout the application package.)

Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories.

Tank No.	Date Installed/ Modified (MM/YY)	Materials Stored	Roof Type (Table VI-C)	Seal Type (Table VI-C)	Capacity[1]		Diameter (M)	Vapor Space (M)	Color (Table VI-C)		Paint Condition (Table VI-C)	Annual Through-put (gal/yr)	Turn-overs per year
					(bbl)	(M^3)			Roof	Shell			

Table VI-C: Liquid Storage Tank Data Codes						
Roof Type	**Seal Type, Welded Tank Seal Type**		**Seal Type, Riveted Tank Seal Type**		**Roof, Shell Color**	**Paint Cond.**
FX, Fixed Roof	1, Mechanical Shoe Seal	2, Liquid-mounted resilient seal	3, Vapor-mounted resilient seal	4, Seal Type	WH, White	Good
IF, Internal Floating Roof	A, Primary only	A, Primary only	A, Primary only	A, Mechanical shoe, primary only	AS, Aluminum (specular)	Poor
EF, External Floating Roof	B, Shoe-mounted secondary	B, Weather shield	B, Weather shield	B, Shoe mounted secondary	AD, Aluminum (diffuse)	
P, Pressure	C, Rim-mounted secondary	C, Rim-mounted secondary	C, Rim-mounted secondary	C, Rim-mounted secondary	LG, Light Gray	
					MG, Medium Gray	
					BL, Black	
					OT, Other	

[1]0.159 M^3 = 42.0 gal = 1.00 bbl

Table VI-D: Materials Processed and Produced (Use additional sheets if necessary.)							
Material Processed				**Material Produced**			
Description	**Chemical Composition**	**Phase[1]**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase[1]**	**Quantity (specify units)**

[1]G =Gas, L = Liquid, or S = Solid

Part VII – Emissions Measurement

Table VII-A: Continuous Emissions Measurement (CEM) Equipment (Use additional sheets if necessary.)
(Unit and stack numbering must correspond throughout the application package.)

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy

Note: If CEM data will be used as part of a federally enforceable permit condition, or used to satisfy the requirements of a state or federal regulation, include a copy of the CEM's manufacturer specification sheet in Attachment D.

Table VII-B: Parametric Emissions Measurement Equipment (Use additional sheets if necessary.)
(Unit and stack numbering must correspond throughout the application package.)

Unit No.	Parameter/ Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time

ATTACHMENT A

Application Summary

[**X**] Attachment A The **Application Summary** shall include a brief description of the facility and its process, the type of permit application, the applicable regulation (20.2.72.200.A.X, or 20.2.73 NMAC) for which the application is being submitted, and any air quality permit numbers associated with this site. If this facility is to be collocated with another facility, provide details of the other facility including permit number(s). In case of a revision or modification to a facility, provide the lowest level regulatory citation (i.e. 20.2.72.219.B.1.d NMAC) under which the revision or modification is being requested. Also describe the proposed changes from the original permit, how the proposed modification will effect the facility's operations and emissions, debottlenecking impacts, and changes to the facility's major/minor status (both PSD & Title V).

NASA is currently permitted under NMED air quality permits 629-M-1, 629-M-2, and 629-M-3 to operate an Altitude Simulation System at the White Sands Test Facility (WSTF). This technical revision request pertains to permit 629-M-3. Specifically, per NMAC 20.2.72.219.B(1)(a), NASA-WSTF requests that permit Conditions 2(e)(3) and 9(c) be revised such that these conditions do not absolutely specify the use of Test Preparation Sheet (TPS) 3-ALT-93016-1 and Data Sheets A and B for test-event emissions documentation. This technical revision is requested because the specific documents cited restrict our ability to upgrade test procedures over time. The cited documents were originally incorporated into the permit from the reference document examples provided in the original permit application.

Currently, permit Condition 2(e)(3) reads as follows:

"NASA-WSTF shall complete NASA JSC WSTF Test Preparation Sheet 3-ALT-930165-1 prior to every thruster rocket engine firing test, and prior to turning on either cooling tower if the towers are not operated concurrently with thruster testing. Continuation Data Sheets A and B of the Test Preparation Sheet shall be completed for all operating times of thruster rockets and of the cooling towers. The actual operating times of the thrusters and cooling towers indicated by Section 4.0 of Continuation Data Sheet A shall not exceed the maximum durations allowed in Section 3.4."

The intent of permit Condition 2(e)(3) is to ensure that ammonia emissions associated with thruster rocket engine firing tests and / or cooling tower use are documented and compared to the ammonia hourly emission rate limit of 100 lb/hr. With this being the case, NASA proposes the following language to replace permit Condition 2(e)(3) as currently written:

"NASA shall estimate ammonia emissions prior to every thruster rocket engine firing test, and prior to turning on either cooling tower if the towers are not operated concurrently with the thruster test. This shall be done to ensure that the hourly ammonia emission rate limit of 100 lb/hr is maintained. Total ammonia emissions shall be estimated by measuring the ammonia concentration in the 300 Area pond and estimating cooling tower emissions and rocket engine firing emissions using a Psychrometric Chart and Grain Delta Sheets."

Enclosure 4 contains an example of ammonia emissions estimated using the Psychrometric Chart and Grain Delta Sheets. This emissions estimating method is the same method that applied when the original permit application was submitted, per reference of existing permit Condition 2(e)(3).

Currently permit Condition 9(c) reads as follows:

"These records and NASA JSC WSTF Test Preparation Sheets 3-ALT-930165-1 with Continuation Data Sheets A and B shall be maintained on-site for a minimum of two (2) years from the time of recording and shall be made available to Department personnel upon request."

NASA proposes the following language to replace permit Condition 9(c), as currently written:

"These records, including the records maintained per permit Condition 2(e)(3), shall be maintained on-site for a minimum of two (2) years from the time of recording and shall be made available to Department personnel upon request."

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ATTACHMENT B

Process Flow Sheet

☐ Attachment B A **process flow sheet** and/or block diagram indicating the individual equipment, all emission points and types of control applied to those points. The unit numbering system should be consistent throughout this application.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT C

Plot Plan Drawn To Scale

☐ Attachment C A **plot plan drawn to scale** showing emissions points, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. The unit numbering system should be consistent throughout this application.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT D

All Calculations

☐ Attachment D **All calculations** used to determine both the hourly and annual controlled and uncontrolled emission rates. Document the source of each emission factor used. If identical units are being permitted and will be subject to the same operating conditions, submit calculations for only one unit and a note specifying what other units to which the calculations apply.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT E

Information Used To Determine Emissions

☐ Attachment E **Information Used to Determine Emissions shall include the following**:

- ☐ If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
- ☐ If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
- ☐ If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
- ☐ If an older version of AP-42 is used, include a complete copy of the section.
- ☐ If an EPA document or other material is referenced, include a complete copy.
- ☐ Fuel specifications sheet.
- ☐ If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT F

Map

☐ Attachment F **A map** such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 5km (3.1 miles)	The nearest occupied structure(s)
Topographic features of the area	Access and haul roads
The name of the map	Facility property boundaries
A scale	The area which will be restricted to public access

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT G

Proof of Public Notice

☐ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**

Documentary Proof of applicant's public notice
(20.2.72.203.A.14 NMAC)

Per the Guidelines for Public Notification document mentioned above, include.

☐ A copy of the certified letter receipts with post marks and property tax record (20.2.72.203.B NMAC).	☐ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
☐ A sample of the letters sent to the owners of record.	
☐ A sample of the letters sent to counties, municipalities, and Indian tribes.	☐ A sample and verification of the local postings.
☐ A table of the different groups' notices and to whom the notices were sent in each group.	☐ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
☐ A copy of the classified or legal ad and its affidavit of publication. When appropriate, this shall be printed in both English and Spanish.	☐ A copy of the display ad and its affidavit of publication. When appropriate, this shall be printed in both English and Spanish.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT H

Written Description of the Routine Operations of the Facility

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☐ Attachment H **A written description of the routine operations of the facility**. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT I

PSD Applicability Determination for All Sources

☐ Attachment I **A PSD applicability determination for all sources**. For PSD major sources applying for a significant permit revision, use the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review. If netting was done, please provide a copy of it with this attachment.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT J

Discussion Demonstrating Compliance With Each Applicable State & Federal Regulation

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☐ Attachment J **A discussion demonstrating compliance with each applicable state & federal regulation**. If there is a state or federal regulation for your facility's source category that does not apply to your facility, explain why. Examples of regulatory requirements that may nor may not apply to your facility include 40 CFR 60 Subpart OOO (crushers), 40 CFR 63 Subpart HHH (HAPs),,or 20.2.74 NMAC (PSD major sources).

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT K

Preliminary Operational Plan

☐ Attachment K A **preliminary operational plan** defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT L

Air Dispersion Modeling

☐ Attachment L An air quality **dispersion modeling** demonstration (if applicable) as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines. If air dispersion modeling has been waived for this permit application, attach the AQB Modeling Section modeling waver documentation.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT M

Special Requirements for PSD Application

Prior *to Submitting a PSD application*, the permittee shall:

- Submit the BACT analysis for review prior to submittal of the application. No application will be ruled complete until the final determination regarding BACT is made, as this determination can ultimately affect information to be provided in the application. A pre-application meeting is recommended to discuss the requirements of the BACT analysis.
- Submit a modeling protocol prior to submitting the permit application**.**
- Submit the monitoring exemption analysis protocol prior to submitting the application.

For PSD applications, the permittee shall also include the following in attachment M:

- Documentation containing an analysis on the impact on visibility.
- Documentation containing an analysis on the impact on soil.
- Documentation containing an analysis on the impact on vegetation, including state and federal threatened and endangered species.
- Documentation containing an analysis on the impact on water consumption and quality.
- Documentation that the federal land manager of a Class I area within 100 km of the site has been notified and provided a copy of the application, including the BACT and modeling results. The name of any Class I Federal area located within one hundred (100) kilometers of the facility.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

ATTACHMENT N

Other Relevant Information

☐ Attachment N **Other relevant information**. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

Certification

Company Name: National Aeronautics and Space Administration (NASA)

I, Radel Bunker-Farrah, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 11 day of September, 2007, upon my oath or affirmation, before a notary of the State of

New Mexico.

Signature

9-11-07
Date

Radel Bunker-Farrah
Printed Name

Environmental Program Manager
Title

Scribed and sworn before me on this 11th day of September, 2007.

My authorization as a notary of the State of New Mexico expires on the

4th day of March, 2009.

Notary's Signature

9-11-07
Date

LINDA J. GREEN
Notary's Printed Name

Wet Bulb 62°F Dry Bulb 76°F → RH ≈ 42%
Predicted HI = 95°F

On Psychrometric Chart:

62°F up to 100% saturation → 100 grains at existing conditions

95° pred. HI up to 100 grain line, up & left (constant enthalpy line) to 95% saturation
g-coord. of this point → 140 grains at expected high

Grain Delta = 140 - 100 → 40
∴ Use 40 grain delta charts

On 40 grain Δ chart, 90 min firing, 13 lbf engine → 200 ppm NH4 added to pond
TOTAL OF 300 ppm < 500 ppm LIMIT

On [NH4] grain Δ chart, 90 min firing, 13 lbf engine → ~30 lb/hr NH4
< < 500 lb/hr LIMIT

∴ No Time Limit on firing time.

10.50 9.59.024

[illegible] 3NCT 9 [illegible] mod 2

SEPT '00 FIRING

4-ALT-930165-m2

S NASA 103W

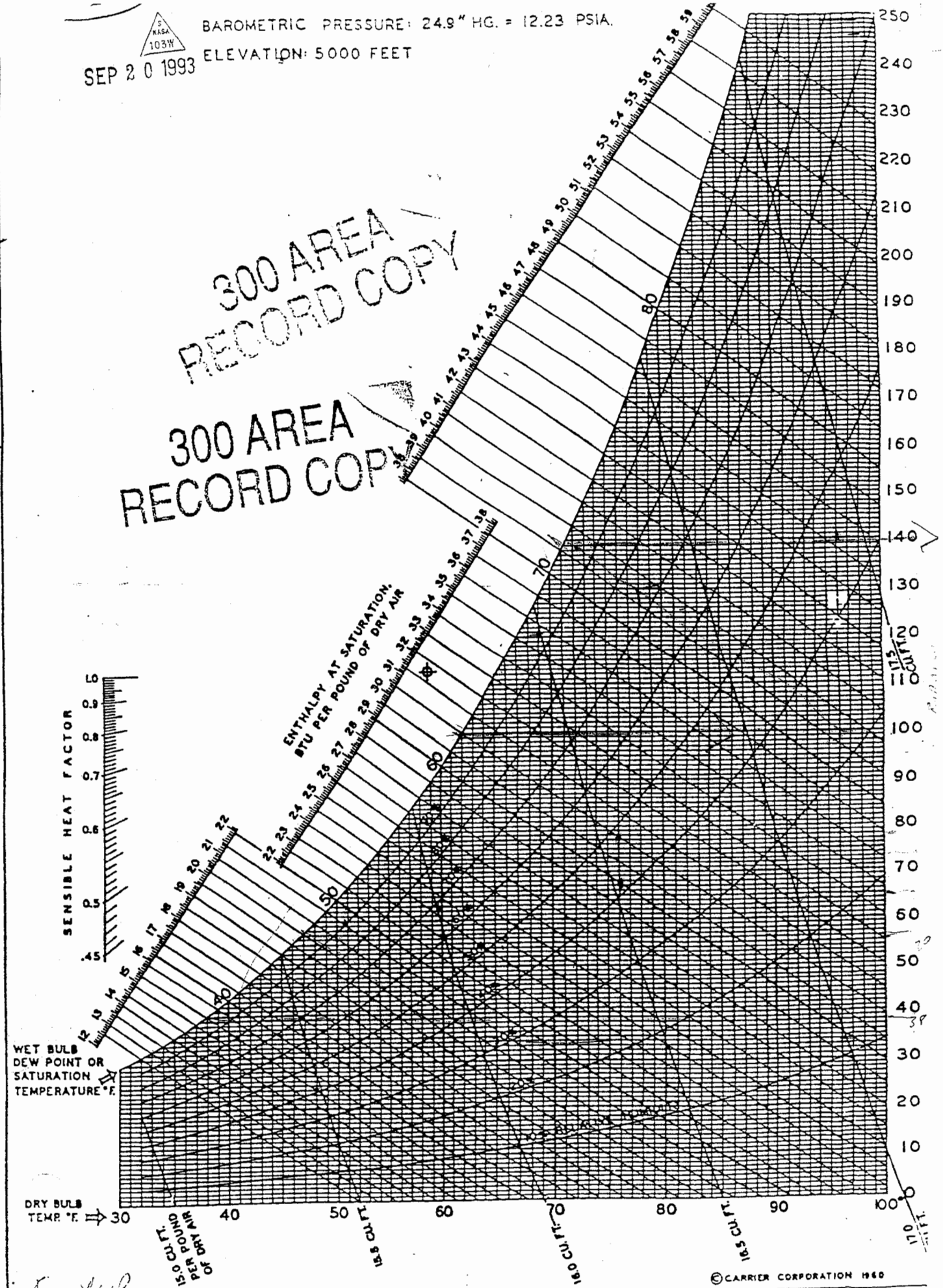
SEP 2 0 1993

BAROMETRIC PRESSURE: 24.9" HG. = 12.23 PSIA.

ELEVATION: 5000 FEET

300 AREA RECORD COPY

300 AREA RECORD COPY



AFLC-WPAFB-APR 73-100

Earl W Ryan

J. Cummitt 02 Sep93

3-ALT-931065-m2

Pg 10

300 AREA COOLING POND DISCHARGE CONTROL DATA

Continuation Data Sheet A

Appendix E WJI-PROP-ALT-0004

			12/19/00	12/20/00							
	DATE	9/12/00	[illegible]	[illegible]	3/13/01	6/5/01	6/7/01	6/8/01	6/12/01	6/25/01	6/26/01
	TIME	9:45 am	9:10 am	9:10 am	10:am	7:30	8 am	7:30 am	6:20 am	8:40 am	8:00 am
001	POND SIGHT GLASS READING	0	0	0	0	30	0	1	3	13	16
003	POND STARTING AMMONIA (ppm)	10	<10	<55		<19	<19	<19	<32.33	<32.33	<32.33
003(1)	PRED. DRY BULB TEMP (F)	95	31	58	66	98	97	95	100	96	95
003(2)	MEA, DRY BULB TEMP (F)	76	41	45	51	72	83	74	75	82	82
	WET BULB TEMPERATURE (F)	62	31	37	35	52	59	58	59	65	65
003(3)	GRAIN DELTA	40	6	10	15	50	40	40	50	35	35
003(4)	TEST PROFILE NO.	11	12	12(Pt II)	13	13.5	13.5	13.5	13.5	13.5	14 ~~13.5~~
	AVERAGE ENGINE THRUST (lb)	13 lbf	13 lbf	13 lbf	13 lbf	13 lbf	13 lbf	13 lbf	13 lbf	13 lbf	13 lbf
	TEST DURATION, TOTAL (min.)	90	96	65	96	71	71	71	71	71	20m 20s
	MAXIMUM COOLING TOWER DURATION (min.)		>96	>65	>96	>71	>71	>71	>71	>71	>21
	MAXIMUM ENGINE DURATION (min.), including after cooling tower stop		>96	>65	>96	>71	>71	>71	>71	>71	>21
004	COOLING TOWER START TIME	9:45 am	1020	13:30	0920	1500	NA	1200	930	1315	900 am
	ENGINE START TIME	0/0	0:00	9:40	0000	000	000	000	000	000	000
	ENGINE STOP TIME	20m 20s / 70m 20s	20m:20s 6m:00s	64m:20s	20m 20s	70m 20s	70m 20s	70m 20s	70m 20s	70m 20s	20m 20s
	COOLING TOWER STOP TIME	3:44 pm	14:05	15:00	1300	1600	NA	1405	945	1615	1045 am
	POND ENDING AMMONIA (ppm)	30	<35	<100		<19	<19	6.3	<32.33	<32.33	<32.33

no run

Contractor Engineer

NASA Engineer 3-24-01

TPS 3-ALT-930165(R)
Mod no. 2

3-ALT-931065-mo

Date:_____

300 AREA COOLING POND DISCHARGE CONTROL DATA

Continuation Data Sheet B

Appendix E WJI-PROP-ALT-0004

DATE	8/7/00	9/13/00	10/13/00	12/19/00	12/20/00	1/11/01	3/7/01	3/14/01	4/12/01	6/7/01
TIME		0705		0853	0838		0900	0800		0800
HYDRAZINE (ppm)	ND		ND			ND			ND	ND
ANILINE (ppm)	ND		ND			ND			ND	ND
BENZINE (ppm)	ND		ND			ND			ND	ND
HYDROGEN CYANIDE (ppm)	ND		ND			ND			ND	ND
AMMONIA (ppm)	10	≤10	12	≤12	≤27	27	19	25	19	6.33

Contractor Engineer

3-24-94
NASA Engineer

3-ALT-930165-M2

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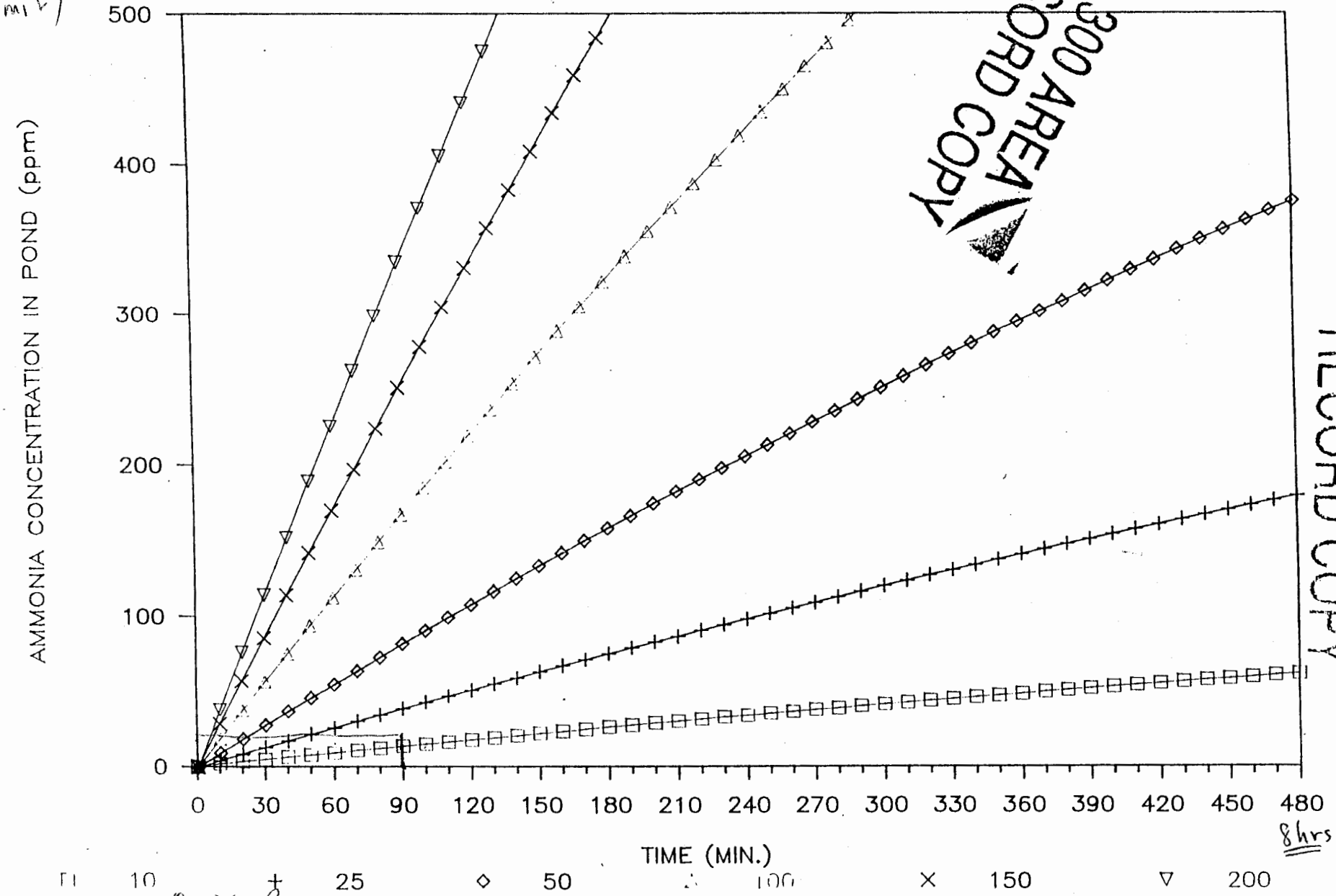
(limit)

40 GRAIN DELTA

10,25,50,100,150, AND 200 LBf THRUST



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Dagny Ryan

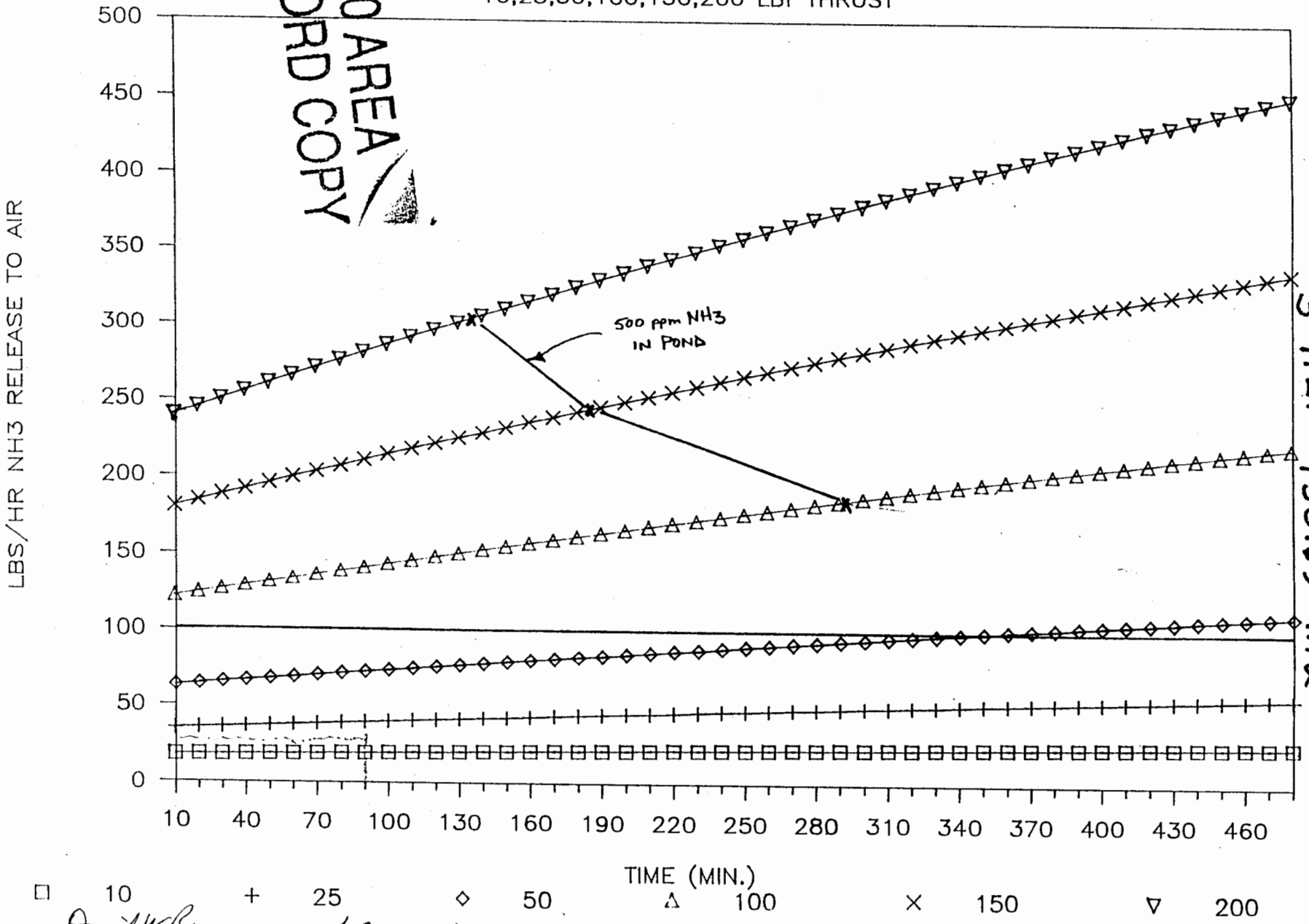
SEP 3 1993

300 AREA
RECORD COPY

30 of 34

40 GRAIN DELTA

10,25,50,100,150,200 LBf THRUST



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