



CAF

Interoffice Communication

To : C. R. Miller
From : S. J. Vincent
Date : May 6, 1981
Subject : PLANT POWER FAILURE ON APRIL 30, 1981

The Aberdeen Plant experienced a total power failure on April 30, 1981. The power outage began at approximately 1:40 p.m. and lasted an estimated 16 minutes until 1:56 p.m. The sequence of events concerning the power outage were (a) that a momentary power loss occurred at 1:40 p.m., (b) a few seconds later total power was lost, (c) at an estimated seven minutes later the power was momentarily restored and then lost again, and then (d) total power re-summption occurred at approximately 1:56 p.m.

During this entire incident, there were no VCM releases or relief valve discharges. In addition, no employees suffered any injuries or were exposed to any VCM. The only known direct product loss was from a resin silo.

The Aberdeen Electrical Department was contacted relative to supplying the basic cause of this power outage. The reason given was that TVA was at the Chesnut Street substation performing their "routine switching". The Electric Department indicates that no prior notification was given to them that TVA was performing this routine switching or that TVA was even in town. It has been our understanding that TVA was to contact the Aberdeen Electric Department who would in turn inform us that switching was to occur.

During this power outage the plant was totally without power. The emergency power backup for our telephones did not function properly so we were without any telephone communications. The battery backup for the vinyl communications radios was in service, so radio communications were possible.

All plant equipment was down during this outage. The status of the major pieces of equipment follows:

<u>Area</u>	<u>Equipment</u>	<u>Product</u>	<u>Status</u>
Old module Reactors	D-300	5385	This reactor was being chem washed.
	D-400	5385	N.O. was added. This reactor had just completed polymerization.
	D-500	5385	N.O. was added. This reactor was in polymerization.

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<u>Area</u>	<u>Equipment</u>	<u>Product</u>	<u>Status</u>
	D-600	5385	This reactor was waiting to be recovered.
CRD Reactors	D-741	5425	N.O. was added. This reactor was in polymerization.
	D-742	5425	N.O. was added. This reactor was in polymerization.
	D-743	5305	Charging had just started.
	D-744	5425	N.O. was added.
Dryers	#1	5385	
	#2	5385	
	#4	5385	
	#5	5425	
	#6	5305	
	#7	5385	
	#8	5385	
Compound	FCM	36861 Nat.	Running - did not set-up.
	Banbury	38611 Nat.	Batch had just dumped and blender bucket had not yet dumped.
Dry Blend	Orbitran	RP-100	
Plasticizer	R1	DIDP	
	R2	DIDP	
	R3	DOP	
	R4	610P	

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A total of 10 N.O. cylinders were used in the old module and 18 N.O. cylinders were used in the CRD area. The deluge system did operate for both reactor areas.

During the power failure response was very good and positive from all employees and contractors. One of the most critical needs to develop was the need for air pressure in the vinyl reactors. A concerted effort was begun about five minutes into the power failure to secure several portable air compressors (lubricated). A tie-in point was located at #9 air compressor so that air pressure could be restored to the vinyl reactors. While in the process of moving air compressors (lubricated) and then securing the necessary connections, the power was restored and the plant air compressors were immediately placed back in service.

Upon restoration of power, all equipment was returned to service. The status of the equipment after startup was as follows:

<u>Area</u>	<u>Equipment</u>	<u>Product</u>	<u>Hours Lost</u>	<u>Comments</u>
Old Module Reactors	D-300	5385	1.0	Noisy gearbox.
	D-400	5385	1.0	Slow seal response.
	D-500	5385	4.5	
	D-600	5385	1.0	
CRD Reactors	D-741	RVCM (11 hrs.) 5385 (1 batch) 5425 (remainder)	35.0	Seal failure.
	D-742	5385 (3 batches) 5425 (remainder)	17.0	
	D-743	5385 (3 batches) 5305 (remainder)	26.0	One gritty batch. Has not been processed yet.
	D-744	5385 (3 batches) 5425 (remainder)	15.0	

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<u>Area</u>	<u>Equipment</u>	<u>Product</u>	<u>Hours Lost</u>	<u>Comments</u>
Dryers	#1	5385	6.5	
	#2	5385	4.0	
	#4	5385 (Alt.) 5425 (Alt.)	4.5	
	#5	5385 (Alt.) 5425 (alt.)	8.5	
	#6	5305 (Alt.) 5385 (Alt.)	7.0	
	#7	5385	3.0	
	#8	5385	3.0	
Compound	FCM	36861 Nat.	1.2	FCM did not set-up. Added steam and it responded after initial high AMP readings.
	Banbury	38611 Nat.	0.5	
Dry Blend	Orbitran	RP-100	0.5	Orbitran was reset.
Plasticizer	R1	DIDP	0.5	
	R2	DIDP	0.5	
	R3	DOP	0.5	
	R4	610P	0.5	
Laboratory	GC Computer	NA	3.0	Restoring program.
Utilities	Air Compressors	Air	0.3	
	Boiler #1	Steam	0.3	
	Boiler #2	Steam	0.3	During the evening of 4/30 boiler tripped. Lost an estimated 14.0 hours since this.
	Boiler #3	Steam	0.3	

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In the old reactor area all of the large reactor seals appear to have held. The D-300 gearbox is still noisy. In the new module, the large reactor seals on D-742 and D-743 rebounded immediately and continue to run. Problems were present with D-741 and D-744 seals. After 30 minutes D-744 seal reseated and continues to run well. D-741 seal was unable to respond and had to be changed (\$2500 est.) D-741 seal change complicated the operation of the CRD area. A high level of RVCM built up in the storage tanks so recovery could not be performed on any of the other three reactors until D-741 was returned to service. Upon completion of the seal change D-741 was used as an RVCM receiver. The dryers suffered extensive downtime due primarily to plugged slurry transfer lines.

The following are the major product losses:

<u>Area</u>	<u>Quantity of Direct Loss</u>	<u>Lost Production</u>
Compound	1,000 pounds	8,000 pounds ⁽²⁾
Reactors	(1)	505,000 pounds ⁽²⁾
Resin Silos	3,000 pounds	-

(1) All material made beside the one 743 batch can be upgraded. There does not appear to be a quality problem resulting from the use of N.O.

(2) Calculation based on hours lost.

The following recommendations are made as a result of this power outage.

- A. A determination needs to be made as to why the emergency generator did not provide the emergency backup power to the telephone system. This problem needs to be corrected.
- B. Investigate the feasibility and cost of providing emergency power to the gaitronics.
- C. Determine if the proposed diesel driven air compressor installation can be expedited as a separate item.
- D. Verify that the DOP seal flush system in the CRD area is functional including the back-up system. This system should be returned to service at the earliest possible opportunity.
- E. Schedule another meeting with TVA to express our concern about their "routine switching".

S. J. Vincent
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c: CLM, PEM, JRM, RDJ, RAF, AHS

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