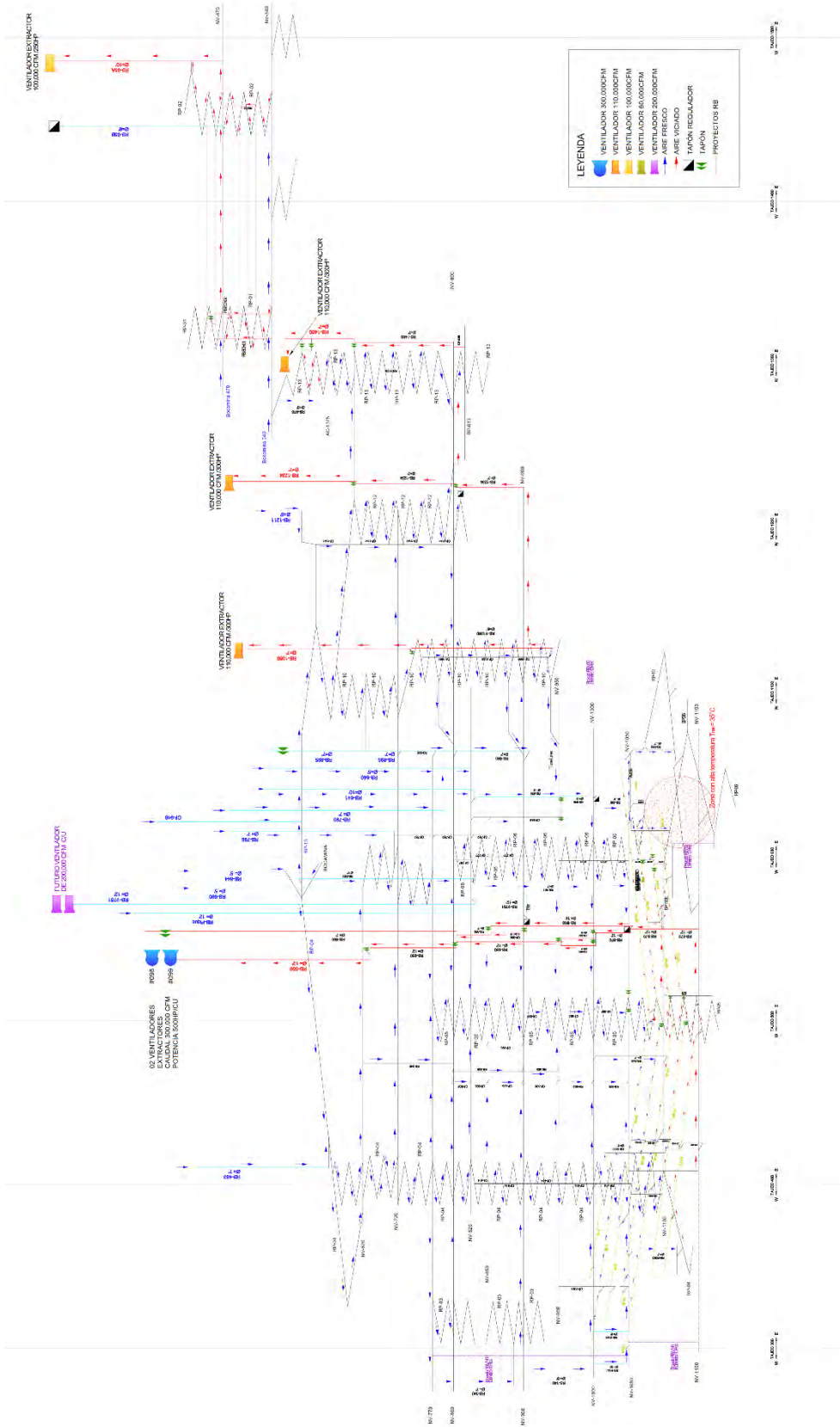
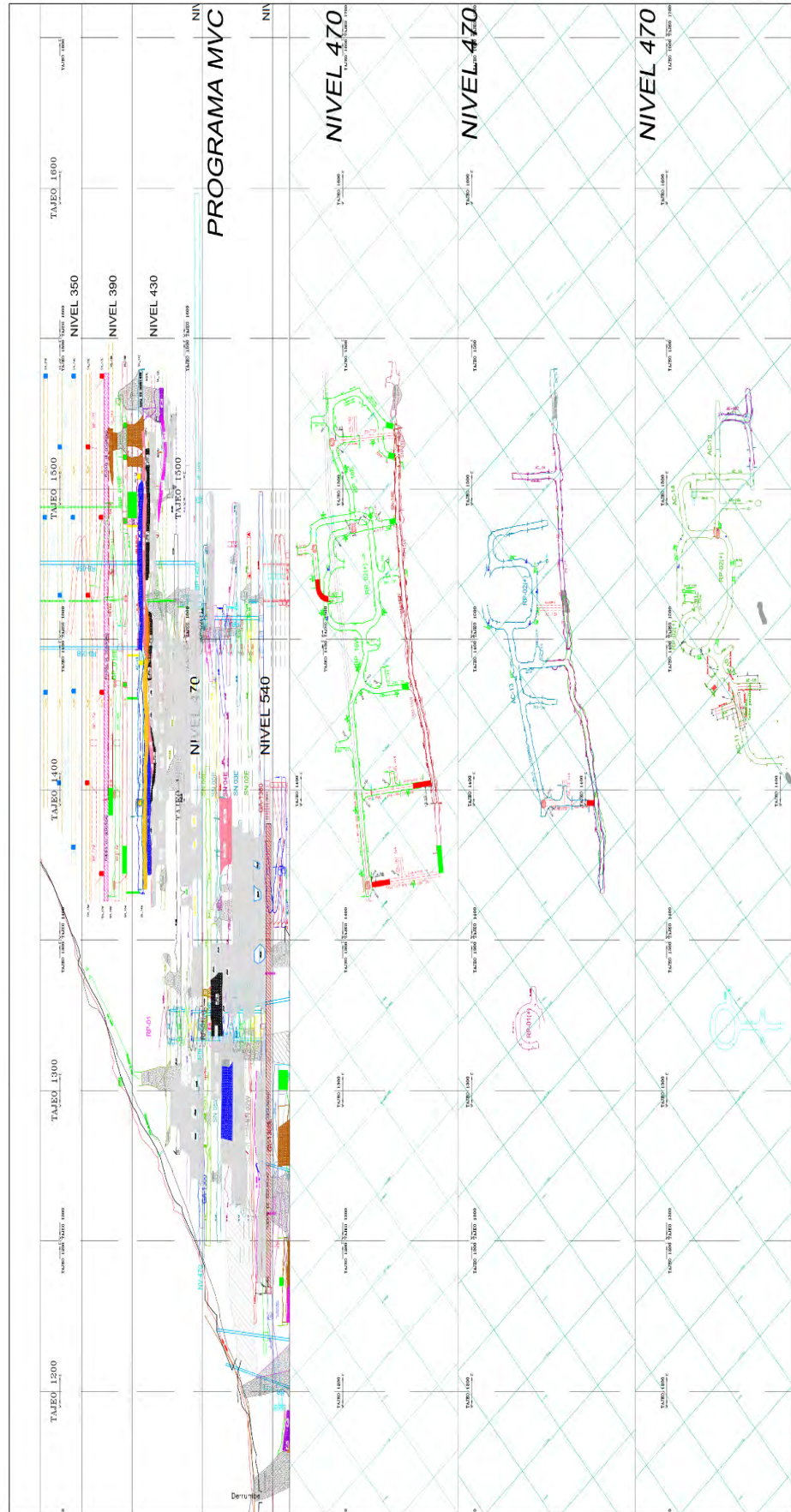


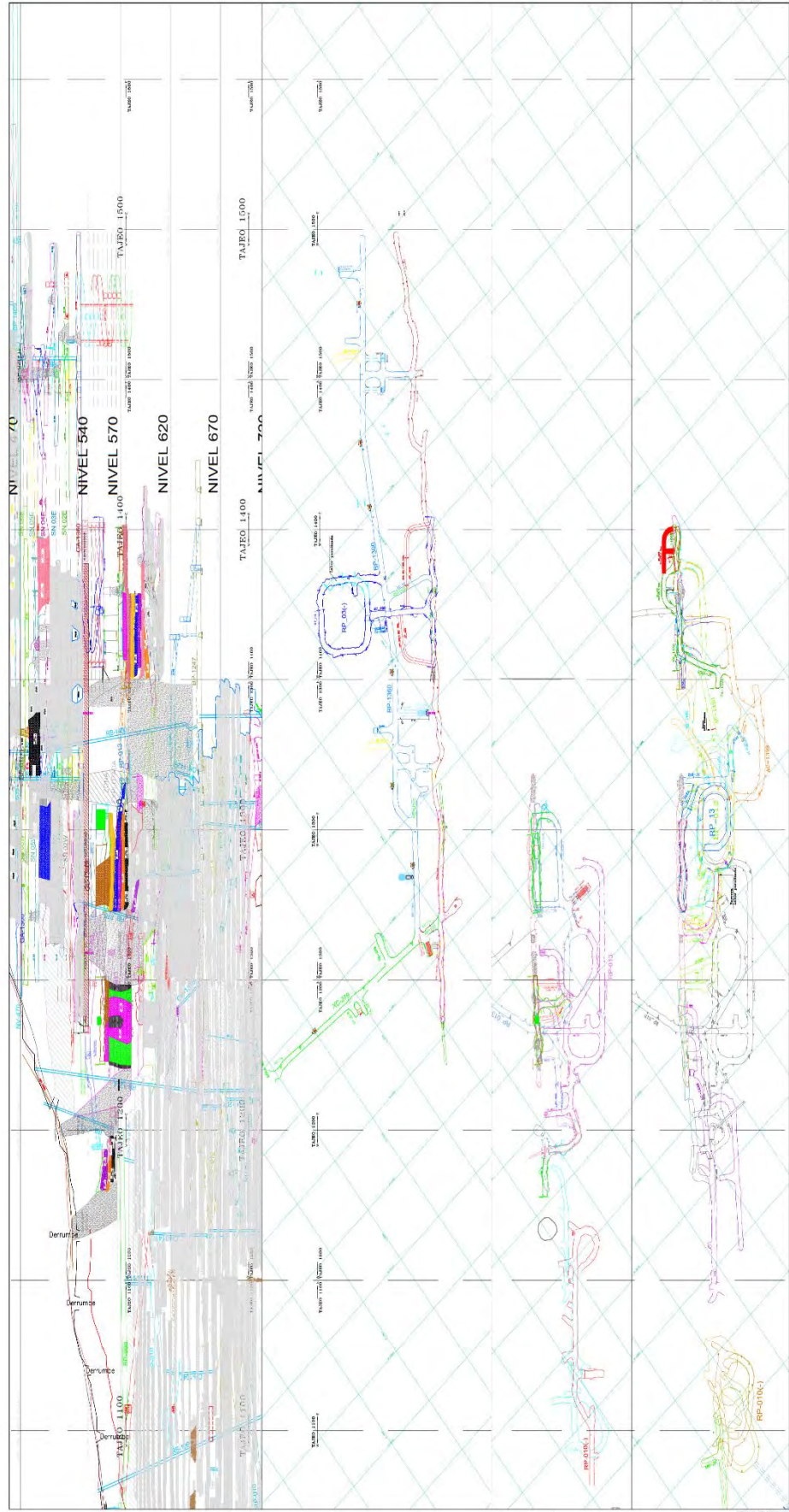
Anexo 1: Diagrama Unifilar de Ventilación



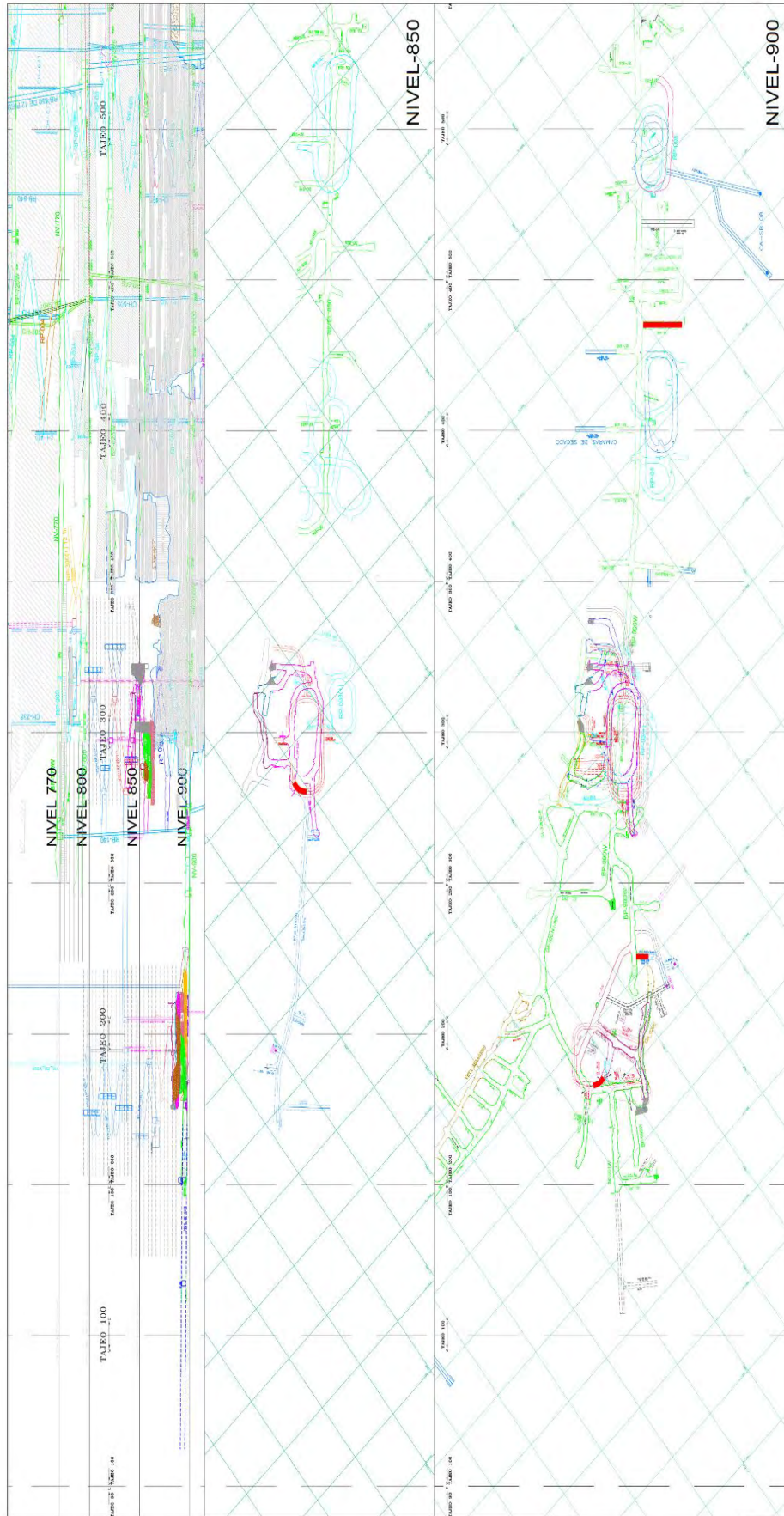
## Anexo 2: Nivel 470



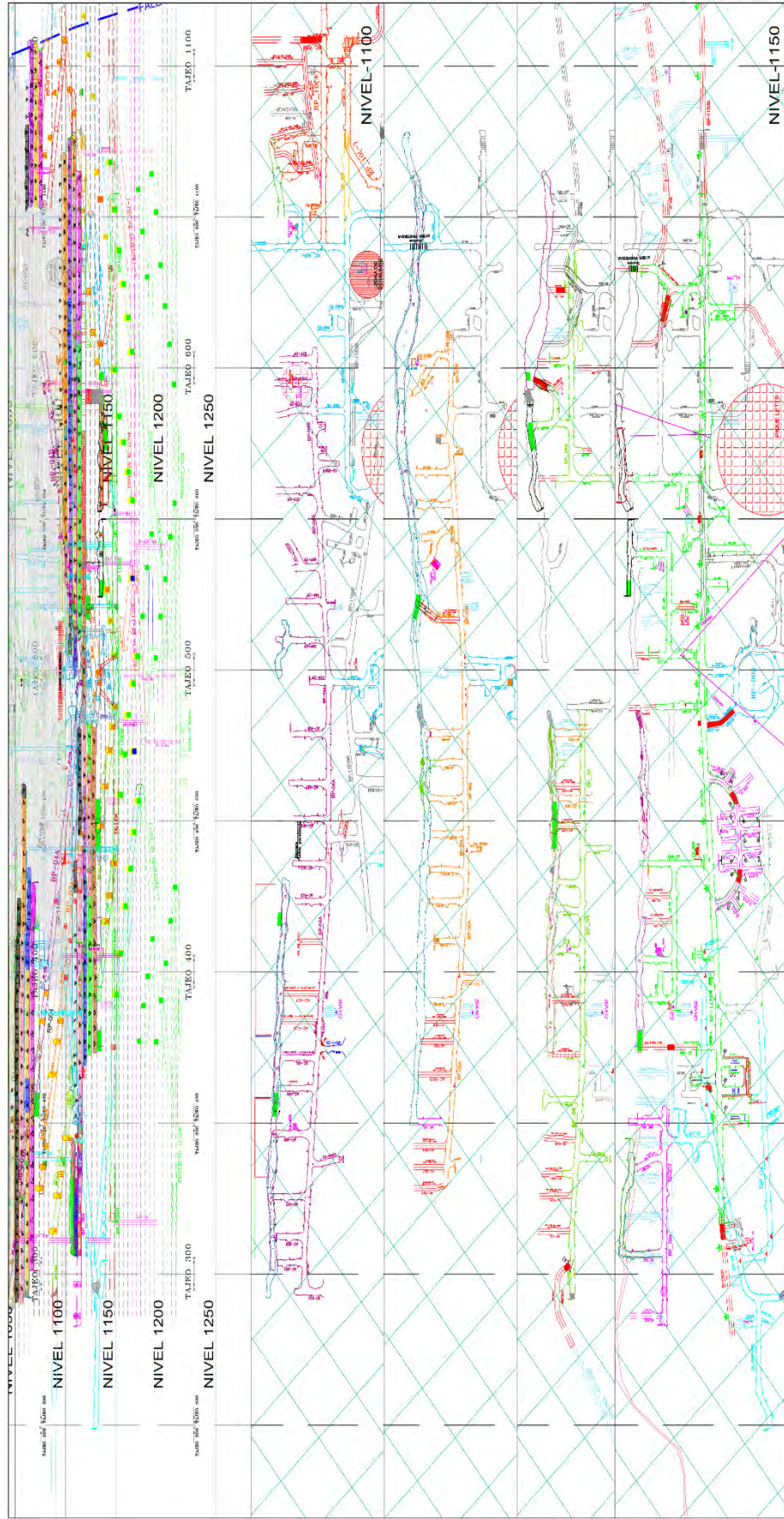
### Anexo 3: Nivel 620



## Anexo 4: Nivel 850



## Anexo 5: Nivel 1150

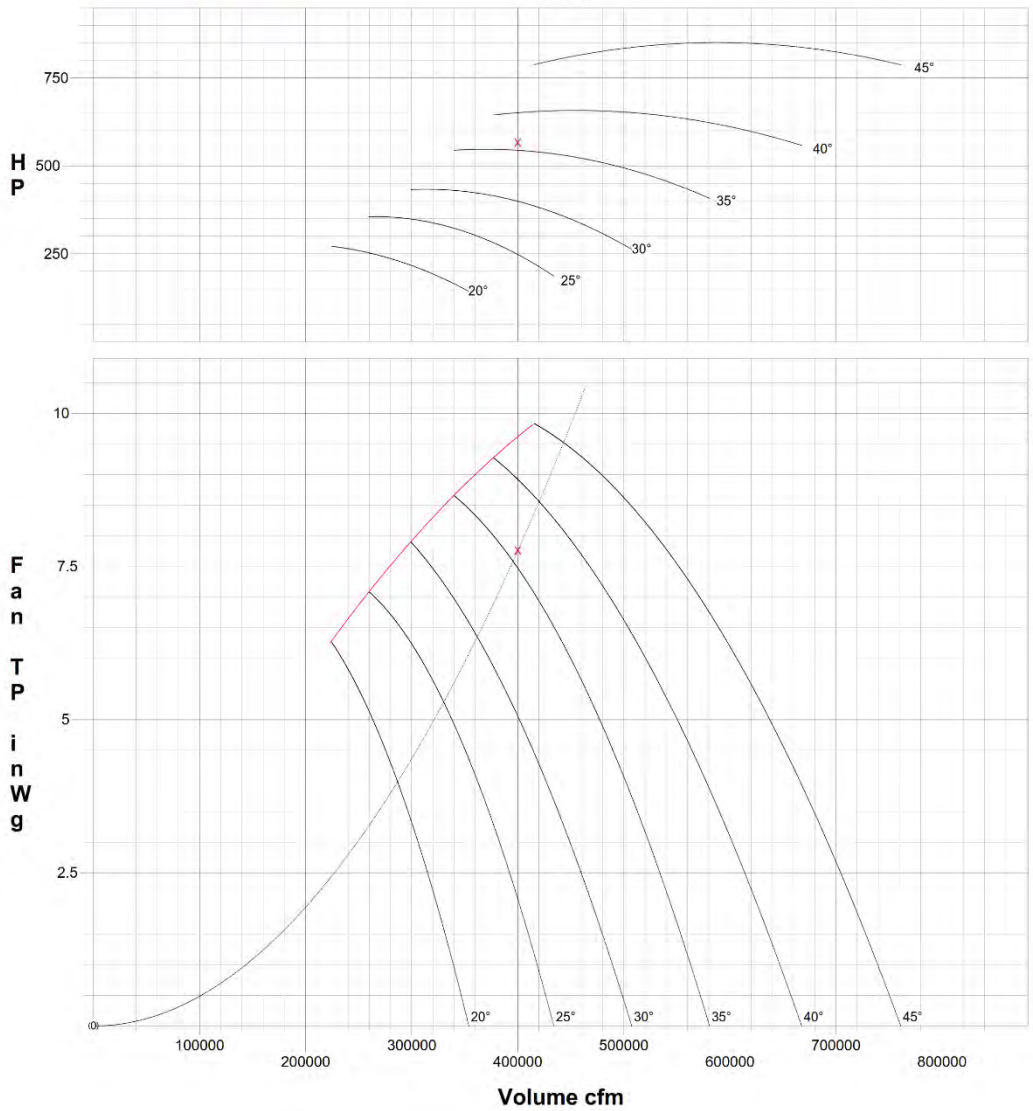


Anexo 6: Curva característica del ventilador: VEN-0098-YA / VEN-0099-YA –  
 Álabes 32.5°



**Alphaair Ventilating Systems, Inc.**  
 1221 Sherwin Road, Winnipeg, MB, R3H 0V1  
 Tel (204) 694-6666 Fax (204) 694-6204

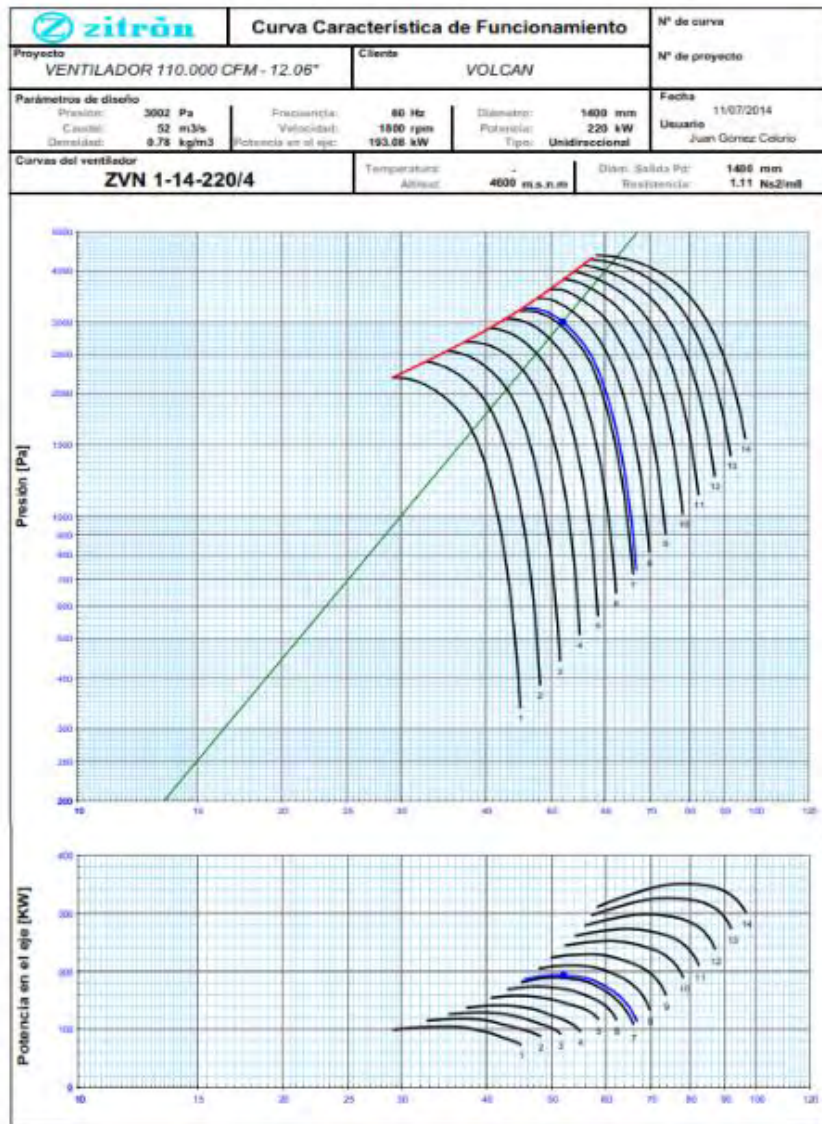
**Volcan**



6  
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|  |                                 |                                   |
|--|---------------------------------|-----------------------------------|
| Fan Performance Curve                    | <b>9250-AMF-5500 Half Blade</b> | Rev. 980127-01                    |
| Diameter: <b>92.50</b> in                | Speed: <b>1180.0</b> Rpm        | Diffuser Diameter: <b>0.00</b> in |
| Altitude: <b>15,420</b> ft asl           | Temperature: <b>64.4</b> degF   | Diffuser Length: <b>0.00</b> in   |
| Density: <b>0.042</b> lb/ft <sup>3</sup> |                                 | Ref: <b>61455C</b>                |

Anexo 7: Curva característica del ventilador: VEN-155-YA / VEN-156-YA-Álabe 7.5°



Anexo 8: Curva característica del ventilador: VEN-0056-YA-Álabe 60°



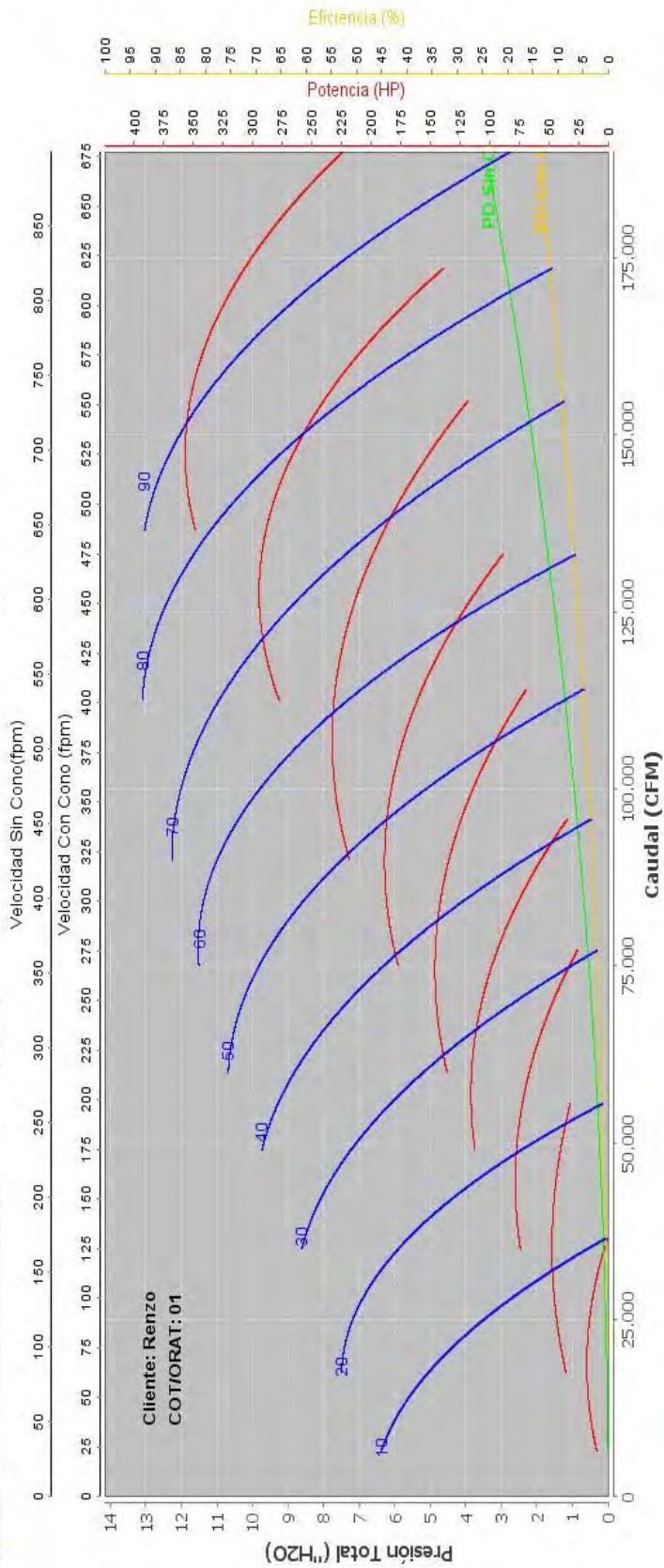
Ventilador # 46 :

VAV-60-26.5-1750-II-A

Condiciones de Trabajo: a 4600.0 mm y 10.0°C de temperatura

Densidad (kg/m<sup>3</sup>): 0.71 Corrección: 0.59 Frecuencia: 60 Hz

|                  |            |
|------------------|------------|
| Pto de Trabajo   |            |
| P. Total ("H2O): | 12.0       |
| Caudal (CFM):    | 110000.0   |
| Descarga:        | Con Cono ▾ |
| Parámetros       |            |
| Posición:        | -          |
| Potencia (HP):   | -          |
| Eficiencia (%):  | -          |
| P. Estática:     | -          |
| P.D. Sin Cono:   | -          |
| P.D. Con Cono:   | -          |





Anexo 9: Curva característica del ventilador: VEN-0151-YA-Alabe 70°



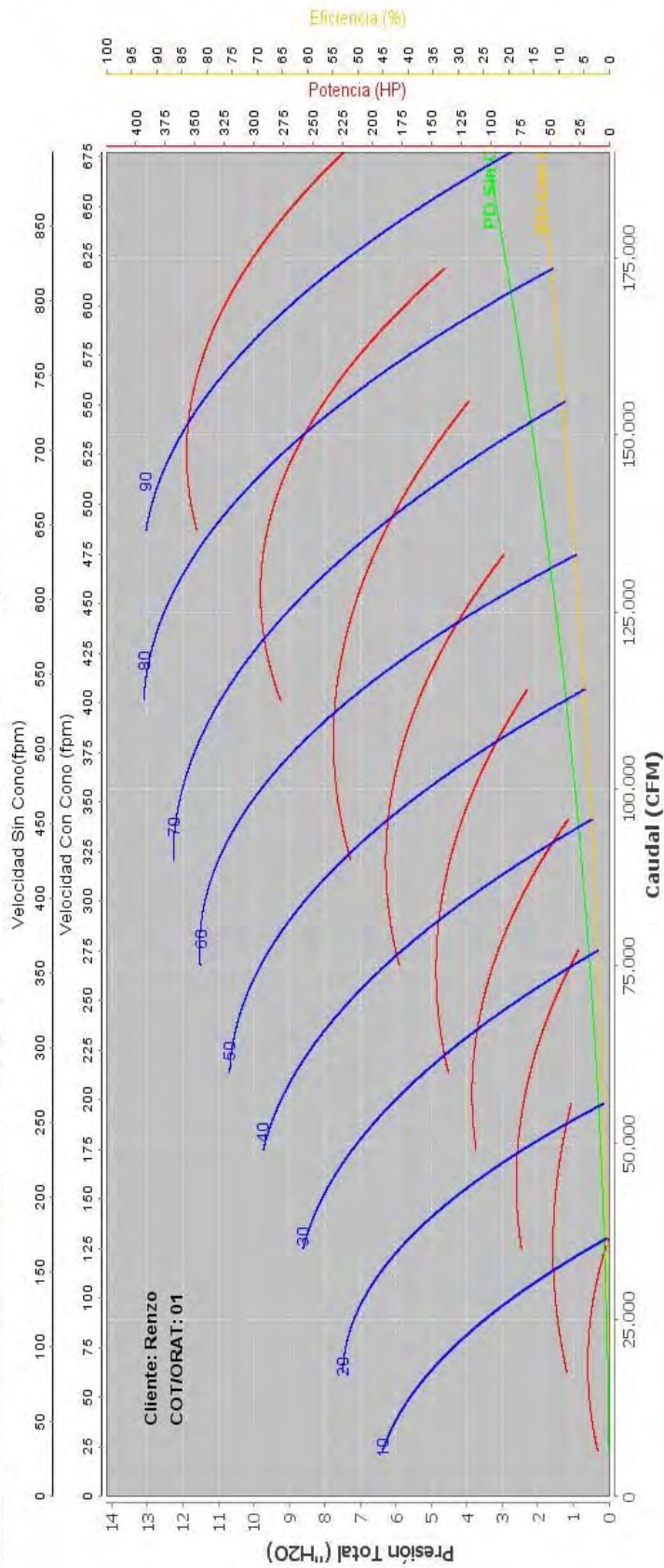
VAV-60-26.5-1750-II-A

Ventilador # 46 :

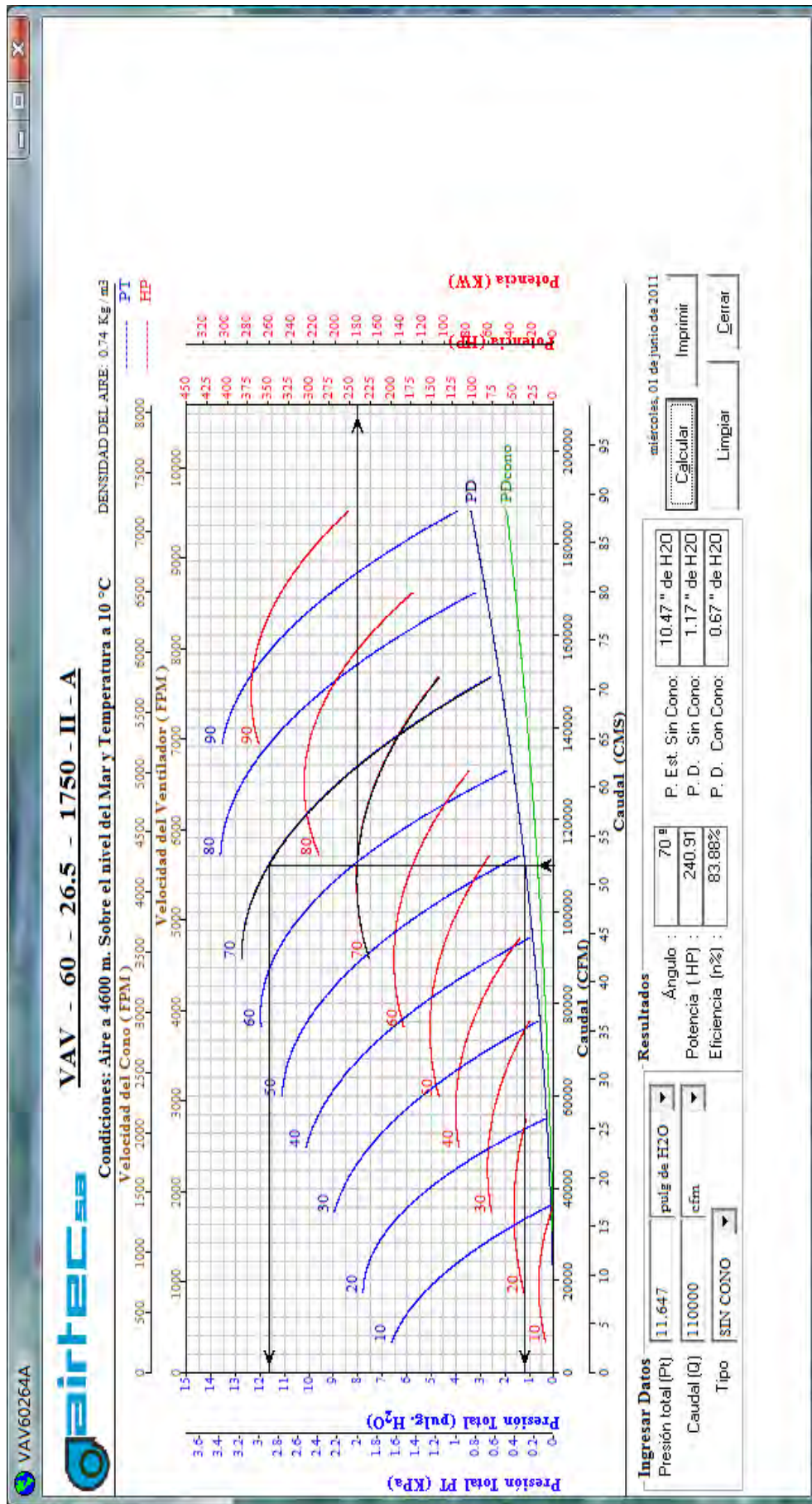
Condiciones de Trabajo: a 4600.0 mm y 10.0°C de temperatura

Densidad (kg/m3): 0.71 Corrección: 0.59 Frecuencia: 60 Hz

|                   |          |
|-------------------|----------|
| Pto. de Trabajo   |          |
| P. Total ("H2O):  | 12.0     |
| Caudal (CFM):     | 110000.0 |
| Descarga:         |          |
| Con Cono:         | ▼        |
| <b>Parámetros</b> |          |
| Posición:         | -        |
| Potencia (HP):    | -        |
| Eficiencia (%):   | -        |
| P. Estática:      | -        |
| P.D. Sin Cono:    | -        |
| P.D. Con Cono:    | -        |



Anexo 10: Curva característica del ventilador: VEN-0057-YA -Alabe 60°



Anexo 11: Registro de velocidades medidas en campo (Interior Mina)

| NIVEL      | PUNTOS | VELOC.PROM (m/s) | TEMPERATURA (°C) | HUMEDAD RELATIVA (%) | FECHA            |
|------------|--------|------------------|------------------|----------------------|------------------|
| NIVEL-670  | 1      | 1.57             | 8.1              | -                    | 13/02/2015 16:10 |
|            | 2      | 0.46             | 15.2             | -                    | 13/02/2015 16:30 |
| NIVEL-770  | 3      | 0.37             | 13.8             | -                    | 13/02/2015 17:00 |
|            | 4      | 1.76             | 10.3             | -                    | 13/02/2015 17:20 |
| NIVEL-800  | 5      | 0.79             | 15.3             | -                    | 13/02/2015 17:40 |
|            | 6      | 1.13             | 17.1             | -                    | 13/02/2015 17:45 |
|            | 7      | 2.36             | 14.6             | -                    | 13/02/2015 18:00 |
|            | 8      | 2.74             | 13.1             | -                    | 13/02/2015 18:10 |
| NIVEL-825  | 9      | 0.49             | 12.8             | 76.2                 | 14/02/2015 15:49 |
|            | 10     | 1.45             | 17               | 79.8                 | 14/02/2015 15:55 |
| NIVEL-850  | 11     | 2.72             | 17               | 78.8                 | 14/02/2015 16:10 |
|            | 12     | 1.39             | 13.6             | 91.2                 | 14/02/2015 16:20 |
|            | 13     | 2.52             | 10.2             | 89.1                 | 14/02/2015 16:25 |
| NIVEL-950  | 14     | 1.25             | 15.5             | 95.5                 | 14/02/2015 17:00 |
|            | 15     | 0.31             | 18.6             | 98.9                 | 14/02/2015 17:20 |
| NIVEL-1000 | 16     | 0.12             | 17.4             | 99.9                 | 14/02/2015 17:30 |
|            | 17     | 0.61             | 19.60            | 98.70                | 14/02/2015 17:40 |
| NIVEL-1050 | 18     | 1.44             | 17.00            | 94.80                | 14/02/2015 17:50 |
|            | 19     | 0.71             | 17.70            | 96.30                | 14/02/2015 18:00 |
| NIVEL-1100 | 20     | 1.51             | 23.60            | 95.80                | 14/02/2015 18:10 |

Anexo 12: Cuadro comparativo de datos medidos vs datos simulados en Ventsim

| INGRESO DE AIRE |                            |                       |                     |            |
|-----------------|----------------------------|-----------------------|---------------------|------------|
| Item            | Componente                 | Vsimulado<br>(m3/min) | VMedido<br>(m3/min) | %Variación |
| 1               | Bocamina NV-470            | 0.89                  | 1.04                | 85%        |
| 2               | Bocamina NV-540            | 3.66                  | 4.44                | 82%        |
| 3               | RB-1211                    | 9.09                  | 8.08                | 89%        |
| 4               | RB-790                     | 12.39                 | 11.19               | 90%        |
| 5               | RB-690                     | 11.46                 | 9.60                | 84%        |
| 6               | RB-795                     | 6.48                  | 7.81                | 83%        |
| 7               | CH-946 (Via de Escape)     | 21.89                 | 17.91               | 82%        |
| 8               | RB-640                     | 9.29                  | 8.41                | 91%        |
| 9               | Bocamina 570               | 11.77                 | 10.40               | 88%        |
| 10              | RB-895                     | 13.35                 | 12.42               | 93%        |
| 11              | RB- PIQUE                  | 11.05                 | 9.19                | 83%        |
| 12              | RB-483                     | 9.23                  | 8.37                | 91%        |
| SALIDAS DE AIRE |                            |                       |                     |            |
| 1               | NV-470 salida              | 4.43                  | 4.14                | 93%        |
| 2               | RB-1234 (NV-900)           | 3.03                  | 2.77                | 91%        |
| 3               | RB-1060 (NV-950)           | 3.25                  | 3.41                | 95%        |
| 4               | CAMARA VEN-01              | 2.84                  | 2.89                | 98%        |
| 5               | RB-751                     | 12.51                 | 12.27               | 98%        |
| 6               | CAMARA VEN-02              | 3.65                  | 3.55                | 97%        |
| INTERIOR MINA   |                            |                       |                     |            |
| 1               | NV-670 en RP-4             | 1.80                  | 1.57                | 87%        |
| 2               | NV-670 entre RP-4 y RP-6   | 0.50                  | 0.46                | 92%        |
| 3               | NV-770 entre RP-4 y RP-5   | 0.50                  | 0.37                | 74%        |
| 4               | NV-770 entre RP-3 y RP-4   | 2.00                  | 1.76                | 88%        |
| 5               | NV-800 entre RP-5 y RP-6   | 0.90                  | 0.79                | 88%        |
| 6               | NV-800 entre RP-4 y RP-5   | 1.30                  | 1.13                | 87%        |
| 7               | NV-800 antes RP-10         | 2.10                  | 2.36                | 89%        |
| 8               | NV-800 entre RP-10 y RP-12 | 2.40                  | 2.74                | 87%        |
| 9               | NV-825 en RP-6             | 0.60                  | 0.49                | 81%        |
| 10              | NV-825 entre RP-4 y RP-5   | 1.60                  | 1.45                | 90%        |
| 11              | NV-850 despues RP-5        | 2.80                  | 2.72                | 97%        |
| 12              | NV-850 entre RP-4 y RP-5   | 1.60                  | 1.39                | 87%        |
| 13              | NV-850 entre RP-5 y RP-6   | 2.20                  | 2.52                | 87%        |
| 14              | NV-950 antes RP-14         | 1.00                  | 1.25                | 80%        |
| 15              | NV-100 en RP-6             | 0.40                  | 0.31                | 78%        |
| 16              | NV-1000 entre RP-5 y RP-6  | 0.10                  | 0.12                | 85%        |
| 17              | NV-1000 entre RP-4 y RP-5  | 0.70                  | 0.61                | 87%        |
| 18              | NV-1050 entre RP-4 y RP-5  | 1.50                  | 1.44                | 96%        |
| 19              | NV-1050 entre RP-4         | 0.90                  | 0.71                | 79%        |
| 20              | NV-1100 Bypass             | 1.60                  | 1.51                | 95%        |
| <b>TOTAL</b>    |                            |                       |                     | <b>88%</b> |

Anexo 13: Diagrama de Construcción Inicial del Modelo en Ventsim

