Validação Collapse

O objetivo deste arquivo é registrar validação ponto a ponto no cálculo de colapso. "Original" - código disponibilizado pelo Pedro e Versiani "Plataforma" - código implementado e integrado na plataforma Quality Para realizar essa validação foi utilizado os arquivos de dados em anexo:

- WT_data_condensed_wt.xlsx
- OD_data_condensed_od.xlsx

Método de validação:

1. Leitura e verificação de arquivos:

- Ler arquivos nos códigos 'original' versão do Versiani e executar o verify_pipe realizando as conversões de unidade
- Ler arquivos na plataforma realizando as conversões de unidade e executando o verify_pipe na plataforma
- Comparar valores de saída original vs plataforma

2. Execução do modelo de colapso:

- Rodar o modelo de colapso com valores sugeridos na versão original
- Executar o valor de colapso com os mesmo parâmetros de entrada na plataforma
- Comparar valores de colapso de saída original vs plataforma

3. Executar as mesmas etapas anteriores com os arquivos Muskogee (Rafael Braga)

Leitura e verificação de arquivos

1. Ler arquivos nos códigos 'original' versão do Versiani e executar o verify_pipe realizando as conversões de unidade

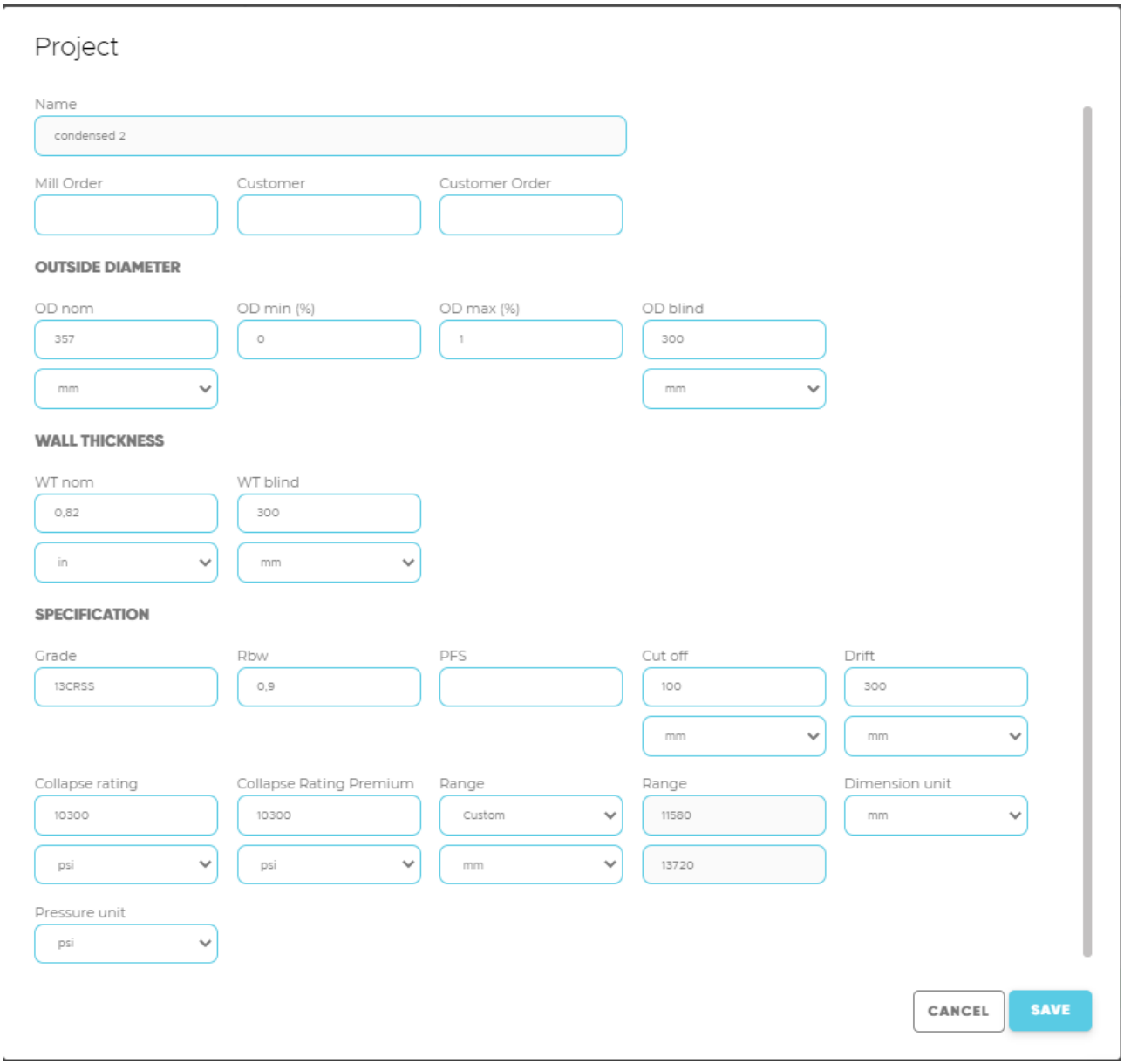
```
# create the units dictionary
dict_units = {"position_WT": "in", #unit
              "position_OD" : "ft",
              "WT" : "in",
              "OD" : "mm",
              "blind_length_end_OD" : "mm",
              "blind_length_end_WT" : "mm",
              "drift_length" : "mm",
              "min_pipe_length" : "mm",
              "max_pipe_length" : "mm",
              "cut_off_length" : "mm",
              "WTnom" : "in",
              "ODnom" : "mm",
              "output_position":"mm",
              "output_WT":"mm",
              "output_OD":"mm"}
```

```
#body
body_dict = {"input" : {
                "df_segments_OD": data_od.to_dict('record'),
                "df_segments_WT" : data_wt.to_dict('record'),
                "blind_length_end_WT" : 300,
                "blind_length_end_OD" : 300,
                "averaging_length_collapse" : averaging_length_collapse,
                "drift_length" : 300,
                "min_pipe_length" : 11580,
                "max_pipe_length" : 13720,
                "cut_off_length" : 100,
                "od_limit_min" : -0.5,
                "od_limit_max" : 1,
                "RBW" : 0.9,
                "WTnom" : 0.82,
                "ODnom" : 357,
                "dict_units" : dict_units}
             }
```

- verify_pipe_original.xlsx

2. Ler arquivos na plataforma realizando as conversões de unidade e executando o verify_pipe na plataforma

- Configuração de Projeto:




```
{
  "id": 67,
  "dth_created_reg": "2021-04-14T00:08:44.992Z",
  "dth_updated_reg": "2021-04-16T20:26:46.713Z",
  "project_name": "condensed 2",
  "mill_order": null,
  "mill": "vsb",
  "customer": null,
  "customer_order": null,
  "collapse_rating": 10300.0,
  "collapse_rating_unit": "psi",
  "cut_off": 100.0,
  "cut_off_unit": "mm",
  "grade": "13CRSS",
  "rbw": 0.9,
  "drift": 300,
  "drift_unit": "mm",
  "input_range": "Custom",
  "range_unit": "mm",
  "range_min": 11580.0,
```

```
  "range_max": 13720.0,
  "averaging_length_collapse": 4,
  "od_nom": 357.0,
  "od_unit": "mm",
  "od_min": 0,
  "od_min_unit": "%",
  "od_max": 1,
  "od_max_unit": "%",
  "od_blind": 300,
  "od_blind_unit": "mm",
  "wt_nom": 0.82,
  "wt_unit": "in",
  "wt_blind": 300,
  "wt_blind_unit": "mm",
  "output_dimension_unit": "mm",
  "output_pressure_unit": "psi",
  "upload_pipes_status": "checked",
  "verify_pipe_status": "checked",
  "data_laboratory_status": "checked",
  "collapse_calculation_status": "current",
  "end_cropping_status": "able",
  "report_status": "disabled",
  "requests": [
    {
      "description": "WT_data_condensed_wt.xlsx, OD_data_condensed_od.xlsx",
      "functionName": "assignMetadata",
      "type": "upload.data",
      "id": "0b9c6b1c-9fbd-4c06-8e9a-398462099b56",
      "payload": { "uuid": "0b9c6b1c-9fbd-4c06-8e9a-398462099b56",
"od_unit": "mm", "od_position_unit": "ft", "wt_unit": "in",
"wt_position_unit": "in" },
      "stage": "upload_pipes_status",
      "status": "COMPLETED",
      "count": 5,
      "error": null
    }
  ],
  "collapse_rating_premium_unit": "psi",
  "pfs": null,
  "collapse_rating_premium": 10300.0
}
```


- Arquivos com unidades convertidas na plataforma
  - od_platform.csv
  - wt_platform.csv
- Verify Pipe
  - warnings_original
  - warnings_platform
  - verify_pipe_original

    - verify_pipe_platform

1. Comparar valores de saída original vs plataforma

- **Comparativo de warnings**
    - DB2397 XX 31
        - original


```
{
  "duplic_inspec_OD": false,
  "duplic_inspec_WT": false,
  "empty_values_ODODmin": false,
  "empty_values_ODODavg": false,
  "empty_values_ODODmax": false,
  "empty_values_WTWTmin": false,
  "empty_values_WTWTavg": false,
  "empty_values_WTWTmax": false,
  "short_pipe": true,
  "long_pipe": false,
  "wtminWTmin": false,
  "wtminWTmin_segment": null,
  "odminODmin": false,
  "odminODmin_segment": null,
  "odmaxODmax": true,
  "odmaxODmax_segment": "[ 700.0, 800.0, 900.0, 1000.0, 1100.0, 1200.0,
1300.0, 1400.0, 1500.0, 1600.0, 1700.0, 1800.0, 1900.0, 2000.0, 2100.0,
2200.0, 2300.0, 2400.0, 2500.0, 2600.0, 2700.0, 2800.0, 2900.0, 3000.0,
3100.0, 3200.0, 3300.0, 3400.0, 3500.0, 3600.0, 3700.0, 3800.0, 3900.0,
4000.0, 4100.0, 4200.0, 4300.0, 4400.0, 4500.0, 4600.0, 4700.0, 4800.0,
4900.0, 5000.0, 5100.0, 5200.0, 5300.0, 5400.0, 5500.0, 5600.0, 5700.0,
5800.0, 5900.0, 6000.0, 6100.0, 6200.0, 6300.0, 6400.0, 6500.0, 6600.0,
6700.0, 6800.0, 6900.0, 7000.0, 7100.0, 7200.0, 7300.0, 7400.0, 7500.0,
7600.0, 7700.0, 7800.0, 7900.0, 8000.0, 8100.0, 8200.0, 8300.0, 8400.0,
8500.0, 8600.0, 8700.0, 8800.0, 8900.0, 9000.0, 9100.0, 9200.0, 9300.0,
9400.0, 9500.0, 9600.0, 9700.0, 9800.0, 9900.0, 10000.0, 10100.0,
10200.0, 10300.0, 10400.0, 10500.0, 10600.0]",
  "repeat_measurWTmin": false,
  "repeat_measurWTavg": false,
  "repeat_measurWTmax": false,
  "repeat_measurODmin": false,
  "repeat_measurODavg": false,
  "repeat_measurODmax": false,
  "ab_ovov": false,
  "ab_ovov_segment": null,
  "ab_eccecc": false,
  "ab_eccecc_segment": null,
  "ab_WTminWTmin": false,
  "ab_WTminWTmin_segment": null,
  "max_pitch_OD": false,
```

```
  "max_pitch_WT": false
}
```

- platform

```
 {
    "duplic_inspec_OD": false,
    "duplic_inspec_WT": false,
    "empty_values_ODODmin": false,
    "empty_values_ODODavg": false,
    "empty_values_ODODmax": false,
    "empty_values_WTWTmin": false,
    "empty_values_WTWTavg": false,
    "empty_values_WTWTmax": false,
    "short_pipe": true,
    "long_pipe": false,
    "wtminWTmin": false,
    "wtminWTmin_segment": null,
    "odminODmin": false,
    "odminODmin_segment": null,
    "odmaxODmax": true,
    "odmaxODmax_segment": "
[600.0,700.0,800.0,900.0,1000.0,1100.0,1200.0,1300.0,1400.0,1500.0,1600
.0,1700.0,1800.0,1900.0,2000.0,2100.0,2200.0,2300.0,2400.0,2500.0,2600.
0,2700.0,2800.0,2900.0,3000.0,3100.0,3200.0,3300.0,3400.0,3500.0,3600.0
,3700.0,3800.0,3900.0,4000.0,4100.0,4200.0,4300.0,4400.0,4500.0,4600.0,
4700.0,4800.0,4900.0,5000.0,5100.0,5200.0,5300.0,5400.0,5500.0,5600.0,5
700.0,5800.0,5900.0,6000.0,6100.0,6200.0,6300.0,6400.0,6500.0,6600.0,67
00.0,6800.0,6900.0,7000.0,7100.0,7200.0,7300.0,7400.0,7500.0,7600.0,770
0.0,7800.0,7900.0,8000.0,8100.0,8200.0,8300.0,8400.0,8500.0,8600.0,8700
.0,8800.0,8900.0,9000.0,9100.0,9200.0,9300.0,9400.0,9500.0,9600.0,9700.
0,9800.0,9900.0,10000.0,10100.0,10200.0,10300.0,10400.0,10500.0,10600.0
,10700.0,10800.0,10900.0]",
    "repeat_measurWTmin": false,
    "repeat_measurWTavg": false,
    "repeat_measurWTmax": false,
    "repeat_measurODmin": false,
    "repeat_measurODavg": false,
    "repeat_measurODmax": false,
    "ab_ovov": false,
    "ab_ovov_segment": null,
    "ab_eccecc": false,
    "ab_eccecc_segment": null,
    "ab_WTminWTmin": false,
    "ab_WTminWTmin_segment": null,
    "max_pitch_OD": false,
    "max_pitch_WT": false
  }

```

- DB2397 XX 22
  - original


```
{
  "duplic_inspec_OD": false,
  "duplic_inspec_WT": false,
  "empty_values_ODODmin": false,
  "empty_values_ODODavg": false,
  "empty_values_ODODmax": false,
  "empty_values_WTWTmin": false,
  "empty_values_WTWTavg": false,
  "empty_values_WTWTmax": false,
  "short_pipe": false,
  "long_pipe": false,
  "wtminWTmin": false,
  "wtminWTmin_segment": null,
  "odminODmin": false,
  "odminODmin_segment": null,
  "odmaxODmax": true,
  "odmaxODmax_segment": "[ 700.0, 800.0, 900.0, 1000.0, 1100.0, 1200.0,
1300.0, 1400.0, 1500.0, 1600.0, 1700.0, 1800.0, 1900.0, 2000.0, 2100.0,
2200.0, 2300.0, 2400.0, 2500.0, 2600.0, 2700.0, 2800.0, 2900.0, 3000.0,
3100.0, 3200.0, 3300.0, 3400.0, 3500.0, 3600.0, 3700.0, 3800.0, 3900.0,
4000.0, 4100.0, 4200.0, 4300.0, 4400.0, 4500.0, 4600.0, 4700.0, 4800.0,
4900.0, 5000.0, 5100.0, 5200.0, 5300.0, 5400.0, 5500.0, 5600.0, 5700.0,
5800.0, 5900.0, 6000.0, 6100.0, 6200.0, 6300.0, 6400.0, 6500.0, 6600.0,
6700.0, 6800.0, 6900.0, 7000.0, 7100.0, 7200.0, 7300.0, 7400.0, 7500.0,
7600.0, 7700.0, 7800.0, 7900.0, 8000.0, 8100.0, 8200.0, 8300.0, 8400.0,
8500.0, 8600.0, 8700.0, 8800.0, 8900.0, 9000.0, 9100.0, 9200.0, 9300.0,
9400.0, 9500.0, 9600.0, 9700.0, 9800.0, 9900.0, 10000.0, 10100.0,
10200.0, 10300.0, 10400.0, 10500.0, 10600.0, 10700.0, 10800.0, 10900.0,
11000.0, 11100.0, 11200.0, 11300.0, 11400.0, 11500.0, 11600.0, 11700.0,
11800, 11900, 12000, 12100, 12200, 12300",
  "repeat_measurWTmin": false,
  "repeat_measurWTavg": false,
  "repeat_measurWTmax": false,
  "repeat_measurODmin": false,
  "repeat_measurODavg": false,
  "repeat_measurODmax": false,
  "ab_ovov": false,
  "ab_ovov_segment": null,
  "ab_eccecc": false,
  "ab_eccecc_segment": null,
  "ab_WTminWTmin": false,
  "ab_WTminWTmin_segment": null,
  "max_pitch_OD": false,
  "max_pitch_WT": false
}
```

- platforma`


```
  {
    "duplic_inspec_OD": false,
    "duplic_inspec_WT": false,
    "empty_values_ODODmin": false,
    "empty_values_ODODavg": false,
    "empty_values_ODODmax": false,
    "empty_values_WTWTmin": false,
    "empty_values_WTWTavg": false,
    "empty_values_WTWTmax": false,
    "short_pipe": false,
    "long_pipe": true,
    "wtminWTmin": false,
    "wtminWTmin_segment": null,
    "odminODmin": false,
    "odminODmin_segment": null,
    "odmaxODmax": true,
    "odmaxODmax_segment": "
[600.0,700.0,800.0,900.0,1000.0,1100.0,1200.0,1300.0,1400.0,1500.0,1600
.0,1700.0,1800.0,1900.0,2000.0,2100.0,2200.0,2300.0,2400.0,2500.0,2600.
0,2700.0,2800.0,2900.0,3000.0,3100.0,3200.0,3300.0,3400.0,3500.0,3600.0
,3700.0,3800.0,3900.0,4000.0,4100.0,4200.0,4300.0,4400.0,4500.0,4600.0,
4700.0,4800.0,4900.0,5000.0,5100.0,5200.0,5300.0,5400.0,5500.0,5600.0,5
700.0,5800.0,5900.0,6000.0,6100.0,6200.0,6300.0,6400.0,6500.0,6600.0,67
00.0,6800.0,6900.0,7000.0,7100.0,7200.0,7300.0,7400.0,7500.0,7600.0,770
0.0,7800.0,7900.0,8000.0,8100.0,8200.0,8300.0,8400.0,8500.0,8600.0,8700
.0,8800.0,8900.0,9000.0,9100.0,9200.0,9300.0,9400.0,9500.0,9600.0,9700.
0,9800.0,9900.0,10000.0,10100.0,10200.0,10300.0,10400.0,10500.0,10600.0
,10700.0,10800.0,10900.0,11000.0,11100.0,11200.0,11300.0,11400.0,11500.
0,11600.0,11700.0,11800.0,11900.0,12000.0,12100.0,12200.0,12300.0]",
    "repeat_measurWTmin": false,
    "repeat_measurWTavg": false,
    "repeat_measurWTmax": false,
    "repeat_measurODmin": false,
    "repeat_measurODavg": false,
    "repeat_measurODmax": false,
    "ab_ovov": false,
    "ab_ovov_segment": null,
    "ab_eccecc": false,
    "ab_eccecc_segment": null,
    "ab_WTminWTmin": false,
    "ab_WTminWTmin_segment": null,
    "max_pitch_OD": false,
    "max_pitch_WT": false
  }
```


- DB2399 XX 54
  - original

```
{
  "duplic_inspec_OD": false,
  "duplic_inspec_WT": false,
  "empty_values_ODODmin": false,
  "empty_values_ODODavg": false,
  "empty_values_ODODmax": false,
  "empty_values_WTWTmin": false,
  "empty_values_WTWTavg": false,
  "empty_values_WTWTmax": false,
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  "long_pipe": false,
  "wtminWTmin": false,
  "wtminWTmin_segment": null,
  "odminODmin": false,
  "odminODmin_segment": null,
  "odmaxODmax": true,
  "odmaxODmax_segment": "[ 800.0, 900.0, 1000.0, 1100.0, 1200.0,
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3100.0, 3200.0, 3300.0, 3400.0, 3500.0, 3600.0, 3700.0, 3800.0, 3900.0,
4000.0, 4100.0, 4200.0, 4300.0, 4400.0, 4500.0, 4600.0, 4700.0, 4800.0,
4900.0, 5000.0, 5100.0, 5200.0, 5300.0, 5400.0, 5500.0, 5600.0, 5700.0,
5800.0, 5900.0, 6000.0, 6100.0, 6200.0, 6300.0, 6400.0, 6500.0, 6600.0,
6700.0, 6800.0, 6900.0, 7000.0, 7100.0, 7200.0, 7300.0, 7400.0, 7500.0,
7600.0, 7700.0, 7800.0, 7900.0, 8000.0, 8100.0, 8200.0, 8300.0, 8400.0,
8500.0, 8600.0, 8700.0, 8800.0, 8900.0, 9000.0, 9100.0, 9200.0, 9300.0,
9400.0, 9500.0, 9600.0, 9700.0, 9800.0, 9900.0, 10000.0, 10100.0,
10200.0, 10300.0, 10400.0, 10500.0, 10600.0, 10700.0, 10800.0, 10900.0,
11000.0, 11100.0, 11200.0, 11300.0, 11400.0, 11500.0, 11600.0, 11700.0,
11800, 11900, 12000, 12100, 12200, 12300, 12400]",
  "repeat_measurWTmin": false,
  "repeat_measurWTavg": false,
  "repeat_measurWTmax": false,
  "repeat_measurODmin": false,
  "repeat_measurODavg": false,
  "repeat_measurODmax": false,
  "ab_ovov": false,
  "ab_ovov_segment": null,
  "ab_eccecc": false,
  "ab_eccecc_segment": null,
  "ab_WTminWTmin": false,
  "ab_WTminWTmin_segment": null,
  "max_pitch_OD": false,
  "max_pitch_WT": false
}
```


- platforma


```
  {
    "duplic_inspec_OD": false,
    "duplic_inspec_WT": false,
```

```
      "empty_values_ODODmin": false,
      "empty_values_ODODavg": false,
      "empty_values_ODODmax": false,
      "empty_values_WTWTmin": false,
      "empty_values_WTWTavg": false,
      "empty_values_WTWTmax": false,
      "short_pipe": false,
      "long_pipe": true,
      "wtminWTmin": false,
      "wtminWTmin_segment": null,
      "odminODmin": false,
      "odminODmin_segment": null,
      "odmaxODmax": true,
      "odmaxODmax_segment": "
  [600.0,700.0,800.0,900.0,1000.0,1100.0,1200.0,1300.0,1400.0,1500.0,1600
  .0,1700.0,1800.0,1900.0,2000.0,2100.0,2200.0,2300.0,2400.0,2500.0,2600.
  0,2700.0,2800.0,2900.0,3000.0,3100.0,3200.0,3300.0,3400.0,3500.0,3600.0
  ,3700.0,3800.0,3900.0,4000.0,4100.0,4200.0,4300.0,4400.0,4500.0,4600.0,
  4700.0,4800.0,4900.0,5000.0,5100.0,5200.0,5300.0,5400.0,5500.0,5600.0,5
  700.0,5800.0,5900.0,6000.0,6100.0,6200.0,6300.0,6400.0,6500.0,6600.0,67
  00.0,6800.0,6900.0,7000.0,7100.0,7200.0,7300.0,7400.0,7500.0,7600.0,770
  0.0,7800.0,7900.0,8000.0,8100.0,8200.0,8300.0,8400.0,8500.0,8600.0,8700
  .0,8800.0,8900.0,9000.0,9100.0,9200.0,9300.0,9400.0,9500.0,9600.0,9700.
  0,9800.0,9900.0,10000.0,10100.0,10200.0,10300.0,10400.0,10500.0,10600.0
  ,10700.0,10800.0,10900.0,11000.0,11100.0,11200.0,11300.0,11400.0,11500.
  0,11600.0,11700.0,11800.0,11900.0,12000.0,12100.0,12200.0,12300.0,12400
  .0,12500.0]",
      "repeat_measurWTmin": false,
      "repeat_measurWTavg": false,
      "repeat_measurWTmax": false,
      "repeat_measurODmin": false,
      "repeat_measurODavg": false,
      "repeat_measurODmax": false,
      "ab_ovov": false,
      "ab_ovov_segment": null,
      "ab_eccecc": false,
      "ab_eccecc_segment": null,
      "ab_WTminWTmin": false,
      "ab_WTminWTmin_segment": null,
      "max_pitch_OD": false,
      "max_pitch_WT": false
    }
```


- DB2398 XX 5

  não tem no original

- DB2398 XX 17

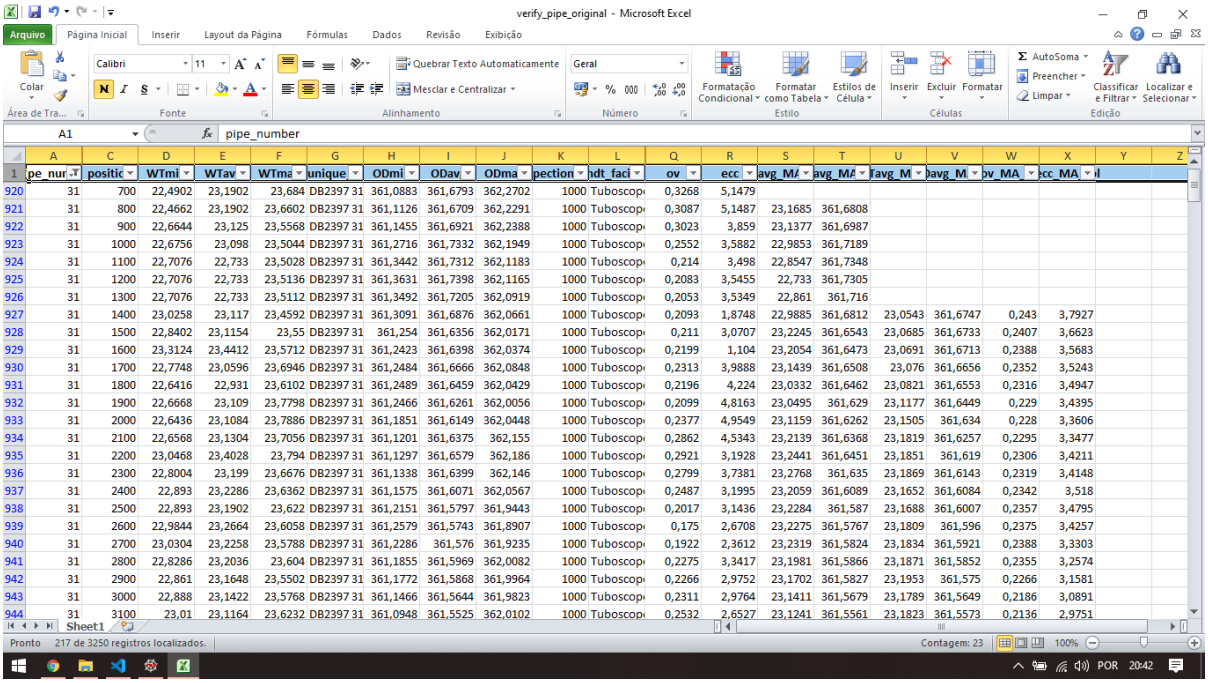
  não tem no original

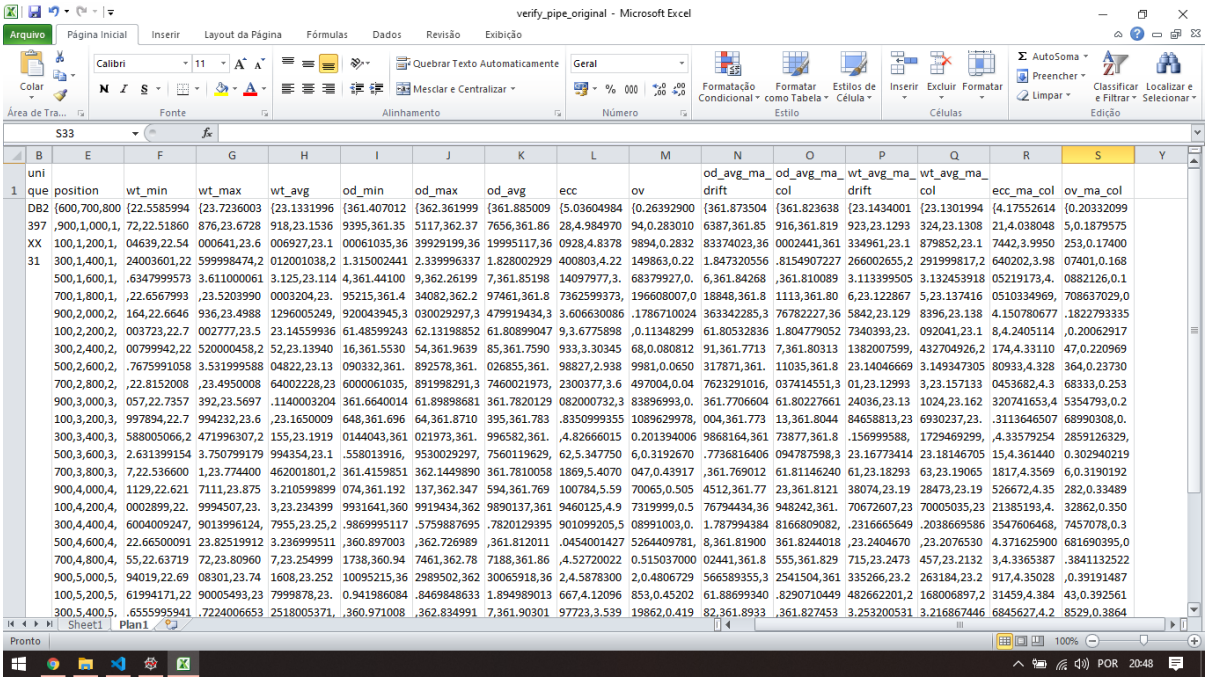
- DB2398 XX 32

não tem no original

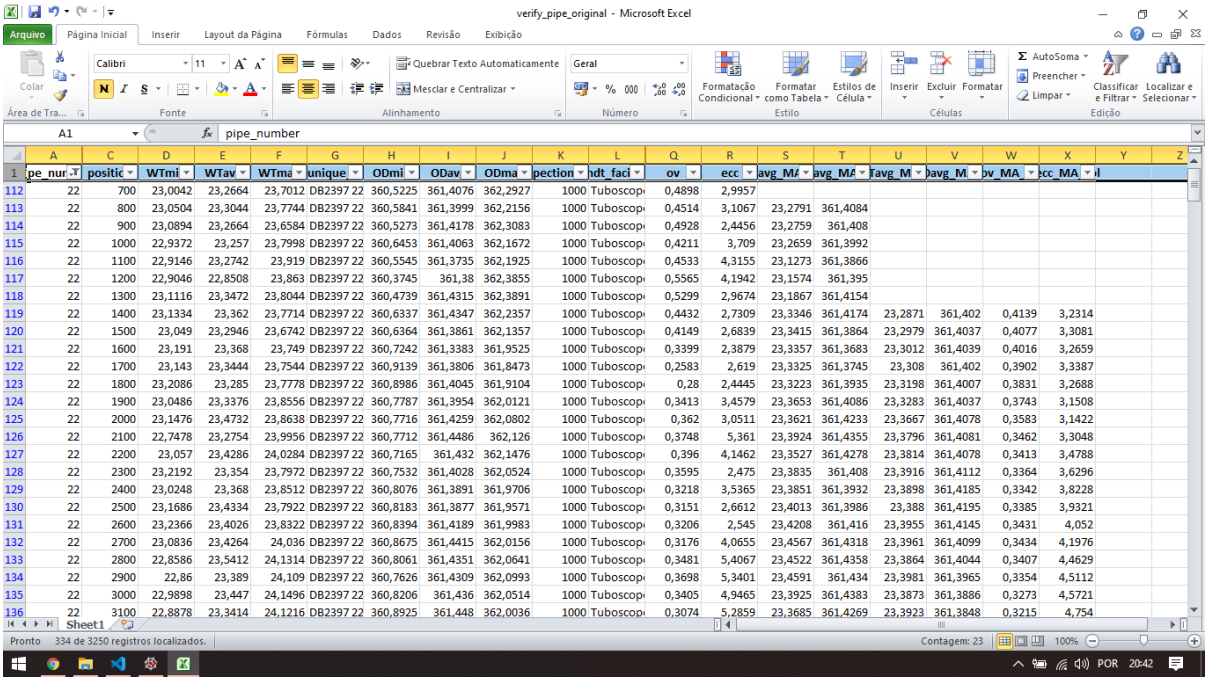
- **Comparativo de valores**

  - DB2397 XX 31





- DB2397 XX 22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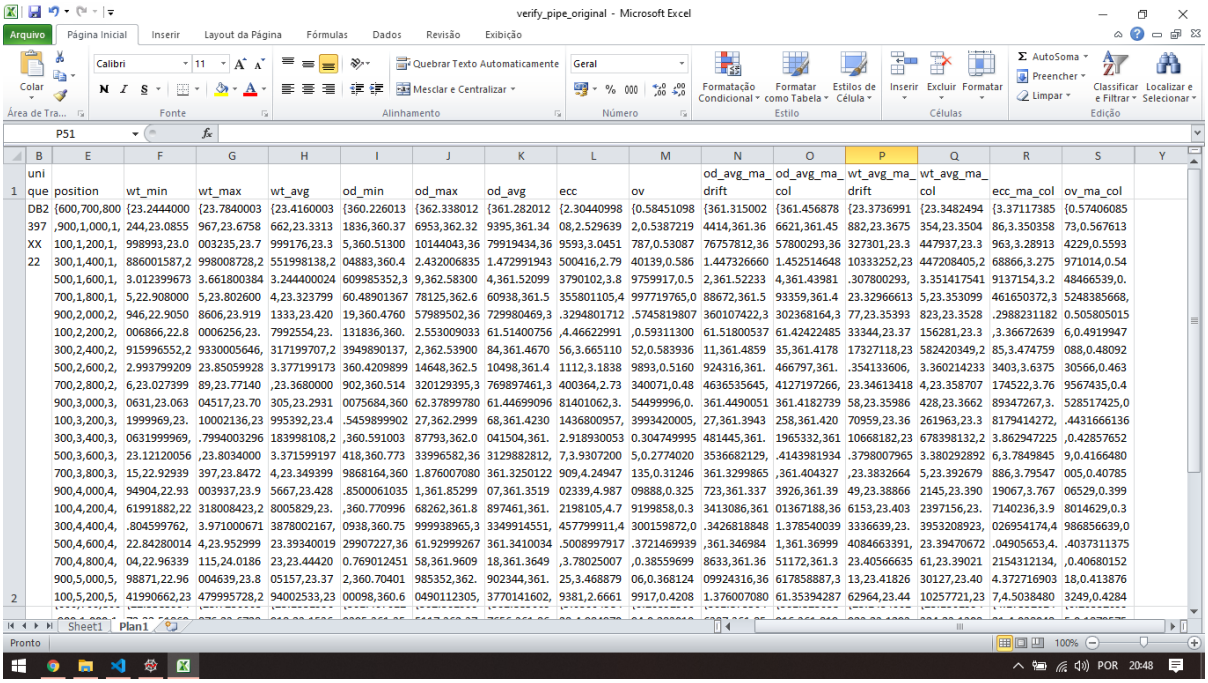
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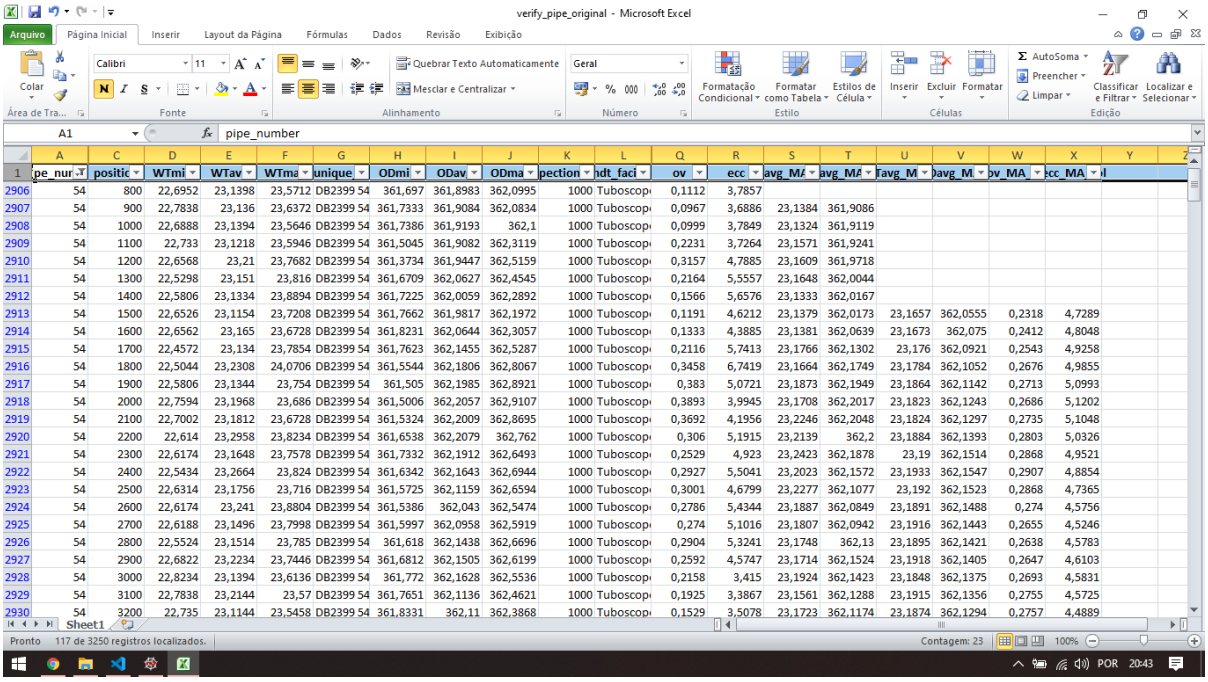

	A	C	D	E	F	G	H	I	J	K	L	Q	R	S	T	U	V	W	X	Y
1	pe_nur	positic	WTmi	WTav	WTma	unique	ODmi	ODav	ODma	pection	ndt_faci	ov	ecc	avg_MA	avg_MA	avg_M	avg_M	ov_MA	cc_MA	
2906	54	800	22,6952	23,1398	23,5712	DB2399 54	361,697	361,8983	362,0995	1000	Tuboscop	0,1112	3,7857							
2907	54	900	22,7838	23,136	23,6372	DB2399 54	361,7333	361,9084	362,0834	1000	Tuboscop	0,0967	3,6886	23,1384	361,9086					
2908	54	1000	22,6888	23,1394	23,5646	DB2399 54	361,7386	361,9193	362,1	1000	Tuboscop	0,0999	3,7849	23,1324	361,9119					
2909	54	1100	22,733	23,1218	23,5946	DB2399 54	361,5045	361,9082	362,3119	1000	Tuboscop	0,2231	3,7264	23,1571	361,9241					
2910	54	1200	22,6568	23,21	23,7682	DB2399 54	361,3734	361,9447	362,5159	1000	Tuboscop	0,3157	4,7885	23,1609	361,9718					
2911	54	1300	22,5298	23,151	23,816	DB2399 54	361,6709	362,0627	362,4545	1000	Tuboscop	0,2164	5,5557	23,1648	362,0044					
2912	54	1400	22,5806	23,1334	23,8894	DB2399 54	361,7225	362,0059	362,2892	1000	Tuboscop	0,1566	5,6576	23,1333	362,0167					
2913	54	1500	22,6526	23,1154	23,7208	DB2399 54	361,7662	361,9817	362,1972	1000	Tuboscop	0,1191	4,6212	23,1379	362,0173	23,1657	362,0555	0,2318	4,7289	
2914	54	1600	22,6562	23,165	23,6728	DB2399 54	361,8231	362,0644	362,3057	1000	Tuboscop	0,1333	4,3885	23,1381	362,0639	23,1673	362,075	0,2412	4,8048	
2915	54	1700	22,4572	23,134	23,7854	DB2399 54	361,7623	362,1455	362,5287	1000	Tuboscop	0,2116	5,7413	23,1766	362,1302	23,176	362,0921	0,2543	4,9258	
2916	54	1800	22,5044	23,2308	24,0706	DB2399 54	361,5544	362,1806	362,8067	1000	Tuboscop	0,3458	6,7419	23,1664	362,1749	23,1784	362,1052	0,2676	4,9855	
2917	54	1900	22,5806	23,1344	23,754	DB2399 54	361,505	362,1985	362,8921	1000	Tuboscop	0,383	5,0721	23,1873	362,1949	23,1864	362,1142	0,2713	5,0993	
2918	54	2000	22,7594	23,1968	23,686	DB2399 54	361,5006	362,2057	362,9107	1000	Tuboscop	0,3893	3,9945	23,1708	362,2017	23,1823	362,1243	0,2686	5,1202	
2919	54	2100	22,7002	23,1812	23,6728	DB2399 54	361,5324	362,2009	362,8695	1000	Tuboscop	0,3692	4,1956	23,2246	362,2048	23,1824	362,1297	0,2735	5,1048	
2920	54	2200	22,614	23,2958	23,8234	DB2399 54	361,6538	362,2079	362,762	1000	Tuboscop	0,306	5,1915	23,2139	362,2	23,1884	362,1393	0,2803	5,0326	
2921	54	2300	22,6174	23,1648	23,7578	DB2399 54	361,7332	362,1912	362,6493	1000	Tuboscop	0,2529	4,923	23,2423	362,1878	23,19	362,1514	0,2868	4,9521	
2922	54	2400	22,5434	23,2664	23,824	DB2399 54	361,6342	362,1643	362,6944	1000	Tuboscop	0,2927	5,5041	23,2023	362,1572	23,1933	362,1547	0,2907	4,8854	
2923	54	2500	22,6314	23,1756	23,716	DB2399 54	361,5725	362,1159	362,6594	1000	Tuboscop	0,3001	4,6799	23,2277	362,1077	23,192	362,1523	0,2868	4,7365	
2924	54	2600	22,6174	23,241	23,8804	DB2399 54	361,5386	362,043	362,5474	1000	Tuboscop	0,2786	5,4344	23,1887	362,0849	23,1891	362,1488	0,274	4,5756	
2925	54	2700	22,6188	23,1496	23,7998	DB2399 54	361,5997	362,0958	362,5919	1000	Tuboscop	0,274	5,1016	23,1807	362,0942	23,1916	362,1443	0,2655	4,5246	
2926	54	2800	22,5524	23,1514	23,785	DB2399 54	361,618	362,1438	362,6696	1000	Tuboscop	0,2904	5,3241	23,1748	362,13	23,1895	362,1421	0,2638	4,5783	
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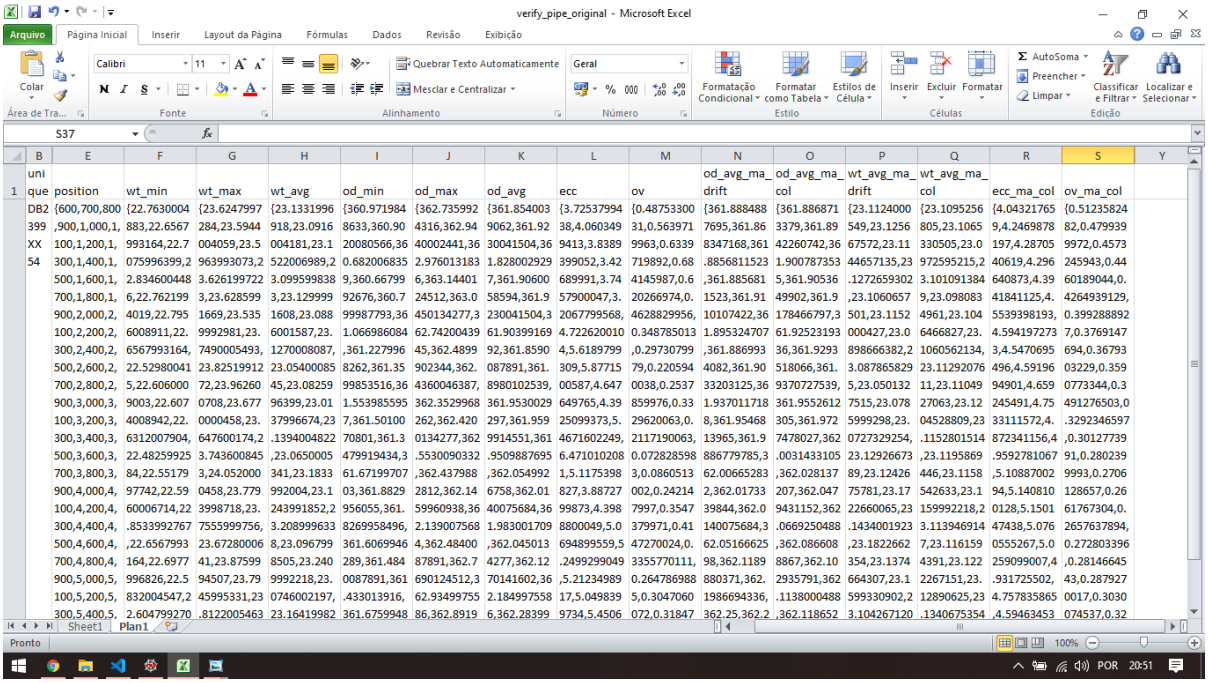
2928	54	3000	22,8234	23,1394	23,6136	DB2399 54	361,772	362,1628	362,5536	1000	Tuboscop	0,2158	3,415	23,1924	362,1423	23,1848	362,1375	0,2693	4,5831	
2929	54	3100	22,7838	23,2144	23,57	DB2399 54	361,7651	362,1136	362,4621	1000	Tuboscop	0,1925	3,3867	23,1561	362,1288	23,1915	362,1356	0,2755	4,5725	
2930	54	3200	22,735	23,1144	23,5458	DB2399 54	361,8331	362,11	362,3868	1000	Tuboscop	0,1529	3,5078	23,1723	362,1174	23,1874	362,1294	0,2757	4,4889	



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4	XX	100,1,200,1,	993164,22.7	004059,23.5	004181,23.1	20080566,36	40002441,36	30041504,36	9413,3.8389	9963,0.6339	8347168,361	42260742,36	67572,23.11	330505,23.0	197,4.28705	9972,0.4573	
5	54	300,1,400,1,	075996399,2	963993073,2	522006989,2	0.682006835	2.976013183	1.828002929	399052,3.42	719892,0.68	.8856811523	1.900787353	44657135,23	972595215,2	40619,4.296	245943,0.44	
6		500,1,600,1,	2.834600448	3.626199722	3.099599838	9,360.66799	6,363.14401	7,361.90600	689991,3.74	4145987,0.6	,361.885681	5,361.90536	.1272659302	3.101091384	640873,4.39	60189044,0.	
7		700,1,800,1,	6,22.762199	3,23.628599	3,23.129999	92676,360.7	24512,363.0	58594,361.9	57900047,3.	20266974,0.	1523,361.91	49902,361.9	,23.1060657	9,23.098083	41841125,4.	4264939129,	
8		900,2,000,2,	4019,22.795	1669,23.535	1608,23.088	99987793,36	450134277,3	230041504,3	2067799568,	4628829956,	10107422,36	178466797,3	501,23.1152	4961,23.104	5539398193,	0.399288892	
9		100,2,200,2,	6008911,22.	9992981,23.	6001587,23.	1.066986084	62.74200439	61.90399169	4.722620010	0.348785013	1.895324707	61.92523193	000427,23.0	6466827,23.	4.594197273	7,0.3769147	
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11		500,2,600,2,	22.52980041	23.82519912	23.05400085	8262,361.35	902344,362.	087891,361.	309,5.87715	79,0.220594	4082,361.90	518066,361.	3.087865829	23.11292076	496,4.59196	03229,0.359	
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13		900,3,000,3,	9003,22.607	0708,23.677	96399,23.01	1.553985595	362.3529968	361.9530029	649765,4.39	859976,0.33	1.937011718	361.9552612	7515,23.078	27063,23.12	245491,4.75	491276503,0	
14		100,3,200,3,	4008942,22.	0000458,23.	37996674,23	7,361.50100	262,362.420	297,361.959	25099373,5.	29620063,0.	8,361.95468	305,361.972	5999298,23.	04528809,23	33111572,4.	.3292346597	
15		300,3,400,3,	6312007904,	647600174,2	.1394004822	70801,361.3	0134277,362	9914551,361	4671602249,	2117190063,	13965,361.9	7478027,362	0727329254,	.1152801514	872341156,4	,0.30127739	
16		500,3,600,3,	22.48259925	3.743600845	,23.0650005	479919434,3	.5530090332	.9509887695	6.471010208	0.072828598	886779785,3	.0031433105	23.12926673	,23.1195869	.9592781067	91,0.280239	
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18		900,4,000,4,	97742,22.59	0458,23.779	992004,23.1	03,361.8829	2812,362.14	6758,362.01	827,3.88727	002,0.24214	2,362.01733	207,362.047	75781,23.17	542633,23.1	94,5.140810	128657,0.26	
19		100,4,200,4,	60006714,22	3998718,23.	243991852,2	956055,361.	59960938,36	40075684,36	99873,4.398	7997,0.3547	39844,362.0	9431152,362	22660065,23	159992218,2	0128,5.1501	61767304,0.	
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24		100,5,200,5,	832004547,2	45995331,23	0746002197,	.433013916,	62.93499755	2.184997558	17,5.049839	5,0.3047060	1986694336,	.1138000488	599330902,2	12890625,23	4.757835865	0017,0.3030	
25		300,5,400,5,	2.604799270	.8122005463	23.16419982	361.6759948	86,362.8919	6,362.28399	9734,5.4506	072,0.31847	362,25,362,2	,362,118652	3.104267120	.1340675354	,4.59463453	074537,0.32	

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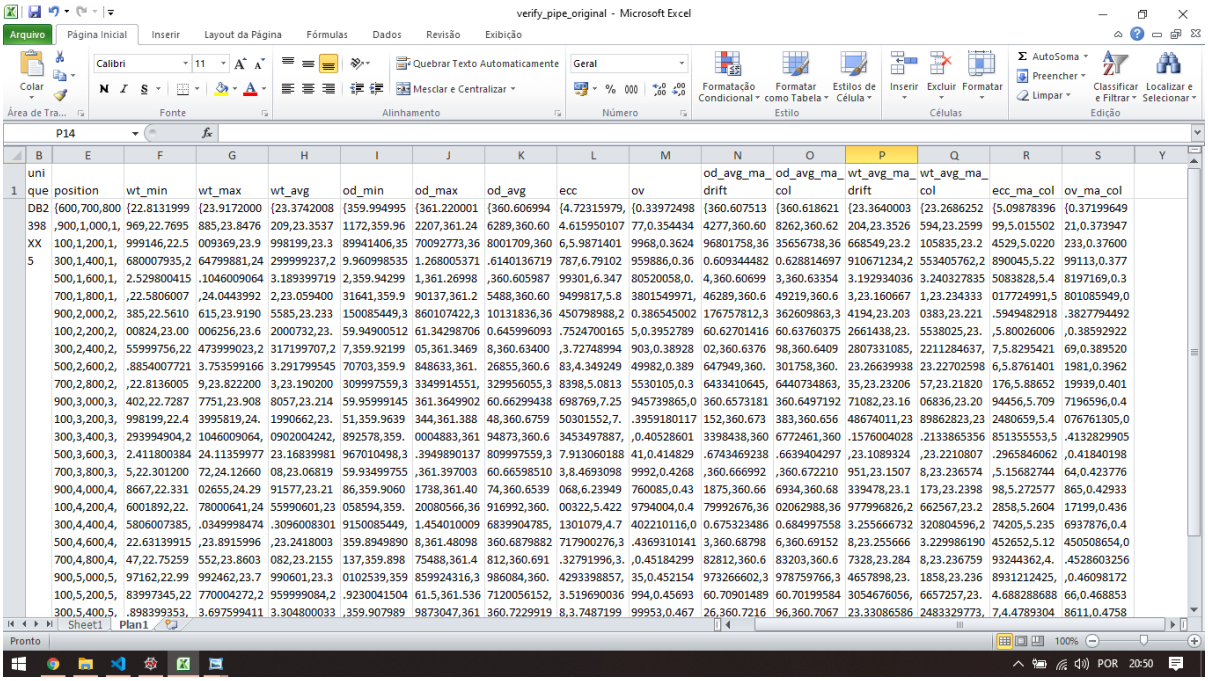

uni que	position	wt_min	wt_max	wt_avg	od_min	od_max	od_avg	ecc	ov	od_avg_ma_ drift	od_avg_ma_ col	wt_avg_ma_ drift	wt_avg_ma_ col	ecc_ma_col	ov_ma_col
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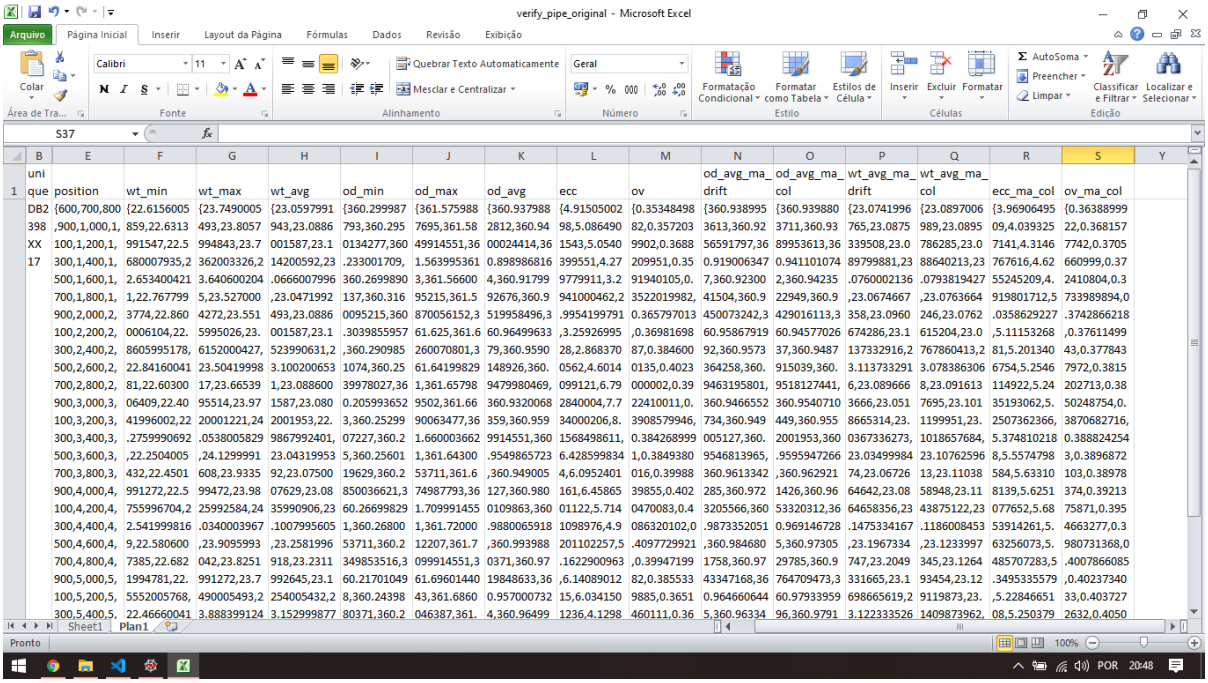
	500,4,600,4,	22.63139915	,23.8915996	,23.2418003	359.8949890	8,361.48098	360.6879882	717900276,3	.4369310141	3,360.68798	6,360.69152	8,23.255666	3.229986190	452652,5.12	450508654,0
	700,4,800,4,	47,22.75259	552,23.8603	082,23.2155	137,359.898	75488,361.4	812,360.691	.32791996,3.	,0.45184299	82812,360.6	83203,360.6	7328,23.284	8,23.236759	93244362,4.	.4528603256
	900,5,000,5,	97162,22.99	992462,23.7	990601,23.3	0102539,359	859924316,3	986084,360.	4293398857,	35,0.452154	973266602,3	978759766,3	4657898,23.	1858,23.236	8931212425,	,0.46098172
	100,5,200,5,	83997345,22	770004272,2	959999084,2	.9230041504	61.5,361.536	7120056152,	3.519690036	994,0.45693	60.70901489	60.70199584	3054676056,	6657257,23.	4.688288688	66,0.468853
	300,5,400,5,	.898399353,	3.697599411	3.304800033	,359.907989	9873047,361	360.7229919	8,3.7487199	99953,0.467	26,360.7216	96,360.7067	23.33086586	2483329773,	7,4.4789304	8611,0.4758

- DB2398 XX 17
  - não gerado no original



uni que	position	wt_min	wt_max	wt_avg	od_min	od_max	od_avg	ecc	ov	od_avg_ma_ drift	od_avg_ma_ col	wt_avg_ma_ drift	wt_avg_ma_ col	ecc_ma_col	ov_ma_col
DB2	{600,700,800	{22.6156005	{23.7490005	{23.0597991	{360.299987	{361.575988	{360.937988	{4.91505002	{0.35348498	{360.938995	{360.939880	{23.0741996	{23.0897006	{3.96906495	{0.36388999
398	,900,1,000,1,	859,22.6313	493,23.8057	943,23.0886	793,360.295	7695,361.58	2812,360.94	98,5.086490	82,0.357203	3613,360.92	3711,360.93	765,23.0875	989,23.0895	09,4.039325	22,0.368157
XX	100,1,200,1,	991547,22.5	994843,23.7	001587,23.1	0134277,360	49914551,36	00024414,36	1543,5.0540	9902,0.3688	56591797,36	89953613,36	339508,23.0	786285,23.0	7141,4.3146	7742,0.3705
17	300,1,400,1,	680007935,2	362003326,2	14200592,23	,233001709,	1.563995361	0.898986816	399551,4.27	209951,0.35	0.919006347	0.941101074	89799881,23	88640213,23	767616,4.62	660999,0.37
	500,1,600,1,	2.653400421	3.640600204	.0666007996	360.2699890	3,361.56600	4,360.91799	9779911,3.2	91940105,0.	7,360.92300	2,360.94235	.0760002136	.0793819427	55245209,4.	2410804,0.3
	700,1,800,1,	1,22.767799	5,23.527000	,23.0471992	137,360.316	95215,361.5	92676,360.9	941000462,2	3522019982,	41504,360.9	22949,360.9	,23.0674667	,23.0763664	9198017125	733989894,0
	900,2,000,2,	3774,22.860	4272,23.551	493,23.0886	0095215,360	870056152,3	519958496,3	.9954199791	0.365797013	450073242,3	429016113,3	358,23.0960	246,23.0762	.0358629227	.3742866218
	100,2,200,2,	0006104,22.	5995026,23.	001587,23.1	.3039855957	61.625,361.6	60.96499633	,3.25926995	,0.36981698	60.95867919	60.94577026	674286,23.1	615204,23.0	,5.11153268	,0.37611499
	300,2,400,2,	8605995178,	6152000427,	523990631,2	,360.290985	260070801,3	79,360.9590	28,2.868370	87,0.384600	92,360.9573	37,360.9487	137332916,2	767860413,2	81,5.201340	43,0.377843
	500,2,600,2,	22.84160041	23.50419998	3.100200653	1074,360.25	61.64199829	148926,360.	0562,4.6014	0135,0.4023	364258,360.	915039,360.	3.113733291	3.078386306	6754,5.2546	7972,0.3815
	700,2,800,2,	81,22.60300	17,23.66539	1,23.088600	39978027,36	1,361.65798	9479980469,	099121,6.79	000002,0.39	9463195801,	9518127441,	6,23.089666	8,23.091613	114922,5.24	202713,0.38
	900,3,000,3,	06409,22.40	95514,23.97	1587,23.080	0.205993652	9502,361.66	360.9320068	2840004,7.7	22410011,0.	360.9466552	360.9540710	3666,23.051	7695,23.101	35193062,5.	50248754,0.
	100,3,200,3,	41996002,22	20001221,24	2001953,22.	3,360.25299	90063477,36	359,360.959	34000206,8.	3908579946,	734,360.949	449,360.955	8665314,23.	1199951,23.	2507362366,	3870682716,
	300,3,400,3,	.2759990692	.0538005829	9867992401,	07227,360.2	1.660003662	9914551,360	1568498611,	0.384268999	005127,360.	2001953,360	0367336273,	1018657684,	5.374810218	0.388824254
	500,3,600,3,	,22.2504005	,24.1299991	23.04319953	5,360.25601	1,361.64300	.9549865723	6.428599834	1,0.3849380	9546813965,	.9595947266	23.03499984	23.10762596	8,5.5574798	3,0.3896872
	700,3,800,3,	432,22.4501	608,23.9335	92,23.07500	19629,360.2	53711,361.6	,360.949005	4,6.0952401	016,0.39988	360.9613342	,360.962921	74,23.06726	13,23.11038	584,5.63310	103,0.38978
	900,4,000,4,	991272,22.5	99472,23.98	07629,23.08	850036621,3	74987793,36	127,360.980	161,6.45865	39855,0.402	285,360.972	1426,360.96	64642,23.08	58948,23.11	8139,5.6251	374,0.39213
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	300,4,400,4,	2.541999816	.0340003967	.1007995605	1,360.26800	1,361.72000	.9880065918	1098976,4.9	086320102,0	.9873352051	0.969146728	.1475334167	.1186008453	53914261,5.	4663277,0.3
	500,4,600,4,	9,22.580600	,23.9095993	,23.2581996	53711,360.2	12207,361.7	,360.993988	201102257,5	.4097729921	,360.984680	5,360.97305	,23.1967334	,23.1233997	63256073,5.	980731368,0
	700,4,800,4,	7385,22.682	042,23.8251	918,23.2311	349853516,3	099914551,3	0371,360.97	.1622900963	,0.39947199	1758,360.97	29785,360.9	747,23.2049	345,23.1264	485707283,5	.4007866085
	900,5,000,5,	1994781,22.	991272,23.7	992645,23.1	60.21701049	61.69601440	19848633,36	,6.14089012	82,0.385533	43347168,36	7647094733	331665,23.1	93454,23.12	.3495335579	,0.40237340
	100,5,200,5,	5552005768,	490005493,2	254005432,2	8,360.24398	43,361.6860	0.957000732	15,6.034150	9885,0.3651	0.964660644	60.97933959	698665619,2	9119873,23.	,5.22846651	33,0.403727
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Execução do modelo de colapso

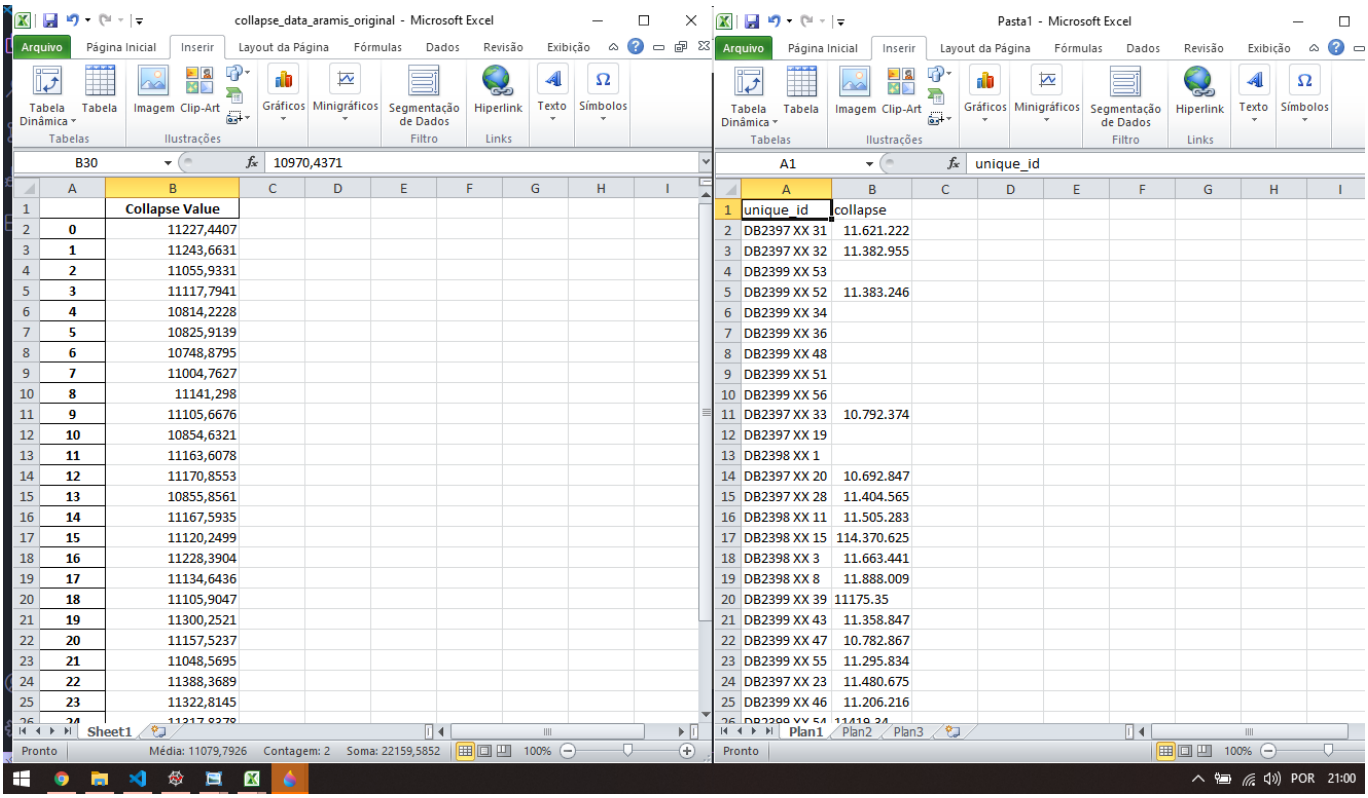
1. Rodar o modelo de colapso com valores sugeridos na versão original

- collapse_data_aramis_original.xlsx

2. Executar o valor de colapso com os mesmo parâmetros de entrada na plataforma

- collapse_platform.csv

3. Comparar valores de colapso de saída original vs plataforma



Executar as mesmas etapas anteriores com os arquivos vstar

- 119098_14inch_VM125HC_compiled_wt.xlsx
- 119098_14inch_VM125HC_compiled_od.xlsx

1. Ler arquivos nos códigos 'original' versão do Versiani e executar o verify_pipe realizando as conversões de unidade

- Não conseguimos rodar o arquivo no código original para validação. Esta dando erro na leitura e tipagem do arquivo