DAFTAR PUSTAKA

Abebe, G.H .2016. *Processing and Joint 1D Inversion of MT and TEM Data From Alallobeda Geothermal Field.*African Rift Geothermal Conference.

Ahmad, Manzoor., Sheikh, Muhammad R., Akram, Waheed., Tasneem MA., Iqbal N, Latif Z. 2007. *Investigation of Geothermal Field in Himalayan Range in Pakistan Using Isotope and Chemical Technique.*Pakistan Institute of Nuclear Science and Technology.

Anas, N. A. Syamsuddin, B. Harimei, dan M. Nasri. 2018. *Identifikasi Struktur Bawah Permukaan Di Sekitar Manifestasi Panas Bumi Reatoa Kabupaten Maros Menggunakan Survei Geolistrik Resistivitas.* Jurnal Geocelebes Vol.4 No.1 2020.

Ariwibowo, Y. 2011. *Prediksi Temperatur Reservoir Panas Bumi Dengan Menggunakan Metode Geotermometer Kimia Fluida.* Jurnal Teknik - Vol.32 No.3 ISSN 0852-1697

Arnorsson, S.1983.*Chemical Equilibria in Icelandic Geothermal Systems - Implications for Chemical Geothermometry Investigations.* Geothermics 12, 119-128.

Asfahani, J. 2010. *Geophysical Case Study of Shallow and Deep Structure Based on Traditional and Modified Interpretation Method.* Exploration and Mining Geology Vol.19. Canada.

Asfahani, J. 2018. *Geoelectrical Combined Sounding-Profiling Configuration For Characterizing The Sedimentary Phosphatic Environtment in Syria.* Geofisica Internacional Vol.57. ISSN 0016-7169

Badan Nasional Penanggulangan Bencana. 2009. *Peta Sebaran Gunungapi Di Indonesia*. Jakarta

Bobachev, A. 2003. *IPI2Win : Resistivity Sounding Interpretation*. Moscow State University

v, O. 2009. *Geochemical Characterization of Thermal luids.*Geothermal Training Program: Reykjavik, Iceland.

Ekinci, Y.L dan Alper, D. 2008. *A Damped Least-Square Inversion Program for the Inrepretation of Schlumberger Sounding Curves.* Departement of Geophysical Engineering, Canakkale Onzekiz Mart University, Turkey.

Ellis, A.J., & Mahon, W.A.J. 1977. *Chemistry and Geothermal System.* Academic Press: New York.

Fathan, Q. 2013. *Studi Potensi Panas Bum Daerah Hululais Kabupaten Lebong Provinsi Bengkulu, Sumatera*. Teknik Geologi, Universitas Hasanuddin.

Fauzan, A. 2016. *Estimasi Produksi Emas dan Perak Dengan Menggunakan Metode Univariate Kriging dan Ordinary Kriging*. Program Studi Magister Matematika, Institut Teknologi Bandung.

Frohlich, R. K., John J. F. , dan E.Summerly. 1996. *Electric-hydraulic conductivity correlation in fractured crystaline bedrock: Central Landfill,USA.*Journal of Applied Geophysics 35 (1996) 249-259.

Giggenbach, W. F. 1988. *Geothermal Solute Equilibria Derivation of Na-K-Mg-Ca Geoindicator.* Geochemica Cosmochimica Acta.

Grandis, H. 2009. *Pengantar Pemodelan Inversi Geofisika*. Institut Teknologi Bandung.

Hall, R. 2009. *Indonesia, Geology*. Royal Holloway University of London.

Hamilton, W. 1973. *Tectonics of The Indonesian Region*. United States Geological Survey Proffesional Paper.

Hendrajaya, Lilik dan Idam Arif. 1990. *Geolistrik Tahanan Jenis*. Laboratorium Fisika Bumi, ITB. Bandung.

Hung, H. N. 1997. *The Use Schlumberger Sounding In Geothermal Exploration, Iceland*. Geothermal Training Programme, Vietnam.

Hochstein and Browne. 2000. *Surface Manifestation od Geothermal System with Volcanic Heat Sources.* Encyclopedia of Volcanoes.

Ian. 2013. *Soil Resistivity Testing Schlumberger Array*. https://greymattersglobal.com/soil-resistivity-testing-methods-schlumberger-array/ . Diakses pada 17 Desember 2019.

[illegible]dward dan Srivastava, R.Mohan. 1989. *Applied Geostatistic*. New York: Oxford University.

Kara, M. J. 2018. *Identifikasi Zona Mineralisasi Kasiterit Menggunakan Metode Induksi Polarisasi dan Resistivitas Daerah Pemali Bangka Belitung*. Universitas Hasanuddin.

Karous, M. & Pernu, T.K. 1985. *Combined Sounding-Profiling Resistivity Measurements With The Three Electrode Arrays*. Geophysical Prospecting 33, 447-459.

Karingithi, C dan J. Wambugu. 2009. Geochemical Survey Case Study Of Arus and Bogoria Geothermal Prospects. UNU-GTP. Kenya

Kearey, P., Michael, B., & Ian, H. 2002. *An Introduction to Geophysics Exploration.* Blackwell Science Ltd. London.

Kebede, Y. 2001. *Application of The Resistivity Method In The Krisuvik Geothermal Area, Iceland*. Geothermal Training Programme, Ethiopia.

Kementrian Energi dan Sumber Daya Mineral. 2017. *Potensi Panas Bumi Indonesia*. Jakarta.

Loke, M. H. 2004. *Tutorial : 2-D and 3-D Electrical Imaging Surveys*. email : mhloke@pc.jaring.my

Maria, M. A. Massinai, Dahlan Tahir, dan Sernita Domapa. 2016. *Interpretasi Data Geokimia Mata Air Panas Di Daerah Geothermal Wala : Studi Kasus Di Kabupaten Toraja*. Simposium Fisika Nasional (SFN) 29. Makassar

Minarto, E. 2011. *Pemodelan Inversi Data Geolistrik Untuk Menentukan Struktur Perlapisan Bawah Permukaan Daerah Panas Bumi Mataoloko*. Jurnal Fisika Nasional.

Minarto, E., dan Astoro, T. 2006. *Identifikasi Struktur Sesar Bawah Permukaan Dengan Menggunakan Konfigurasi Half Schlumberger (Head-On) Pada Eksplorasi Panas Bumi Daerah Mataloko*. Jurnal Fisika dan Aplikasinya Vol.2

Natawidjaja, D.H., K. Sieh. 1994. *Slip Rates Along The Sumatran Transcurrent and It's Tectonic Significance.* Geology Society of London.

n, K.N. 1993. *Geothermal Fluids Chemistry and Exploration echniques.* Berlin.

Rock, D.T., J.A. Aldis, Aspden., M.C.G Clarke, A. Djunudin, W. Kartawa, Miswar, S.J Thompson, dan R.Whandoyo. 1983. *Peta Geologi Lembar Lubuksikaping, Sumatera Skala 1:250.000.*Pusat Penelitian dan Pengembangan Geologi.

Santoso, D. 2002. *Pengantar Teknik Geofisika*. Departemen Teknik Geofisika Fakultas Ilmu Kebumian dan Teknologi Mineral, Institut Teknologi Bandung.

Saptadji, N. M. 2009. *Diktat Kuliah Teknik Eksplorasi Panas Bumi*. Bandung. Departemen Teknik Perminyakan ITB.

Sieh, K. and Natawidjaja, D. 2000. *Neotectonic of The Sumatran Fault, Indonesia*. Journal of Geophysical Research.

Simmons, S.F. 1998. *Geochemistry Lecturer Notes*. Geothermal Institute, University of Auckland.

Soetoyo. 2008. *Hubungan Struktur Sesar Dengan Terbentuknya Endapan Aliran Piroklastik Di Daerah Panas Bumi Mandailing Natal, Sumatera Utara.* Pusat Sumber Daya Geologi. Bandung.

Sugiharta, Asep., Elny, Sumaedi., Imanuel., Tatang., Alfiyani Hilmi., Sri Winarti. 2016. *Pemanfaatan Jasa Lingkungan Panas Bumi Di Hutan Konservasi*. Kementrian Lingkungan Hidup dan Kehutanan. Bogor.

Sulpiani, R., dan Widowati. 2013. *Solusi Numerik Persamaan Difusi dengan Menggunakan Metode Beda Hingga*. Jurnal Sains dan Matematika Vol.21 tahun 2013.

Surharyadi. 1984. *Diktat Kuliah Geohidrologi (Ilmu Air Tanah).* Yogyakarta : Fakultas Teknik, Universitas Gadjah Mada.

Surmayadi, M. 2014. *Geokimia Panas Bumi Gunungapi Slamet Jawa Tengan.* Pusat Vulkanologi dan Mitigasi Bencana Geologi. Bandung.

Susanti, N. 2011. *Pemodelan Sistem Panas Bumi Pincara Kabupaten Luwu Utara, Sulawesi Selatan Berdasarkan Data Geofisika*. Jakarta. Program Studi Pasca Sarjana Ilmu Fisika, Universitas Indonesia.

din, Lantu, Muh.Altin Massinai, & Syaefal Akbar. 2012. *Identifikasi esar Bawah Permukaan Dengan Menggunakan Metode Geolistrik onfigurasi Wenner Di Sekitar Das Jene'berang, Kabupaten Gowa, ılawesi Selatan.* POSITRON, Vol. II, No.2 (2012) Hal. 33-39

Syamsuddin dan Lantu. 2009. *Metode Geolistrik dan Geoelektromagnetik*. Makassar : Program Studi Geofisika, Universitas Hasanuddin.

Telford, W.M., Geldart, L.P., & Sherif, R.F. 1990.*Applied Geophysics : Second Edition.* Cambridge University Press: New York

Wahid, A. M. F. 2017. *Eksplorasi Mata Air Panas Dengan Metode Geokimia dan Geolistrik Resistivitas Daerah Kabupaten Pinrang*. Departemen Geofisika, Universitas Hasanuddin.

L

A

M

P

I

R

A

N

Lampiran I : Penurunan rumus potensial listrik pada bumi

Operator gradient (∇) dalam koordinat bola :

$$\nabla = \frac{\partial}{\partial r} + \frac{1}{r}\frac{\partial}{\partial \theta} + \frac{1}{r\sin\theta}\frac{\partial}{\partial \emptyset} \qquad \text{(L1.0)}$$

Sehingga untuk operator Laplacian (∇^2) adalah :

$$\nabla^2 = \frac{1}{r^2}\frac{\partial}{\partial r}\left(r^2\frac{\partial}{\partial r}\right) + \frac{1}{r^2\sin\theta}\frac{\partial}{\partial \theta}\left(\sin\theta\frac{\partial}{\partial \theta}\right) + \frac{1}{r^2\sin\theta}\frac{\partial}{\partial \emptyset^2} = 0 \qquad \text{(L1.2)}$$

Berdasarkan persamaan 2.9 untuk medium homogen isotropik :

$$\nabla^2 V = \frac{1}{r^2}\frac{\partial}{\partial r}\left(r^2\frac{\partial V}{\partial r}\right) + \frac{1}{r^2\sin\theta}\frac{\partial}{\partial \theta}\left(\sin\theta\frac{\partial V}{\partial \theta}\right) + \frac{1}{r^2\sin\theta}\frac{\partial V}{\partial \emptyset^2} = 0 \qquad \text{(L1.3)}$$

Mengingat bahwa pada arus tunggal, arus mengalir simetri terhadap θ dan $\emptyset$ sehingga $\theta = \emptyset = 0$, dan persamaan (L1.3) menjadi :

$$\nabla^2 V = \frac{1}{r^2}\frac{\partial}{\partial r}\left(r^2\frac{\partial V}{\partial r}\right) + 0 + 0 = 0$$

$$= \frac{1}{r^2}\left(\frac{dr^2}{dr}\frac{dV}{dr} + r^2\frac{d^2V}{dr^2}\right) = 0$$

$$= \frac{2r}{r^2}\frac{dV}{dr} + \frac{d^2V}{dr^2} = 0 \qquad \text{(L1.4)}$$

Kemudian persamaan (L1.4) dikalikan dengan r^2 sehingga menjadi :

$$r^2\frac{2r}{r^2}\frac{dV}{dr} + r^2\frac{d^2V}{dr^2} = 0$$

$$2r\frac{dV}{dr} + r^2\frac{d^2V}{dr^2} = 0 \qquad \text{(L1.5)}$$

kemudian persamaan (L1.5) di integralkan :

$$\int 2r\frac{dV}{dr} + \int r^2\frac{d^2V}{dr^2} = \int 0$$

Untuk $\int 2r\frac{dV}{dr}$ dimisalkan u = 2r dan dv = $\frac{dV}{dr}$ sehingga :

$$2r\frac{dV}{dr} = 2r\,V - \int V\,2\,dr$$

$$= 2r\,V - V\,2r$$

$$= 0 \qquad \text{(L1.6)}$$

Untuk $\int r^2 \frac{d^2V}{dr^2}$ dimisalkan u = r^2 dan dv =$\frac{d^2V}{dr^2}$ sehingga :

$$\int r^2 \frac{d^2V}{dr^2} = r^2 \frac{dV}{dr} - \int 2r \frac{dV}{dr}$$

$$= r^2 \frac{dV}{dr} - 0 \qquad \text{(L1.7)}$$

Berdasarkan hasil pengintegralan pada persamaan (L1.6) dan (L1.7), sehingga persamaan (L1.5) menjadi :

$$r^2 \frac{d^2V}{dr} = B$$

$$\frac{dV}{dr} = \frac{B}{r^2} \qquad \text{(L1.8)}$$

Kemudian dilakukan lagi proses integral pada persamaan (L1.8) :

$$\int \frac{dV}{dr} dr = \int \frac{B}{r^2} dr$$

$$V = B \int r^{-2}\, dr$$

$$= B\,(-1) r^{-1} dr + C$$

$$= -\frac{B}{r} + C \qquad \text{(L1.9)}$$

Pada kasus arus listrik pada bumi berlaku luasan setengah bola, berdasarkan persamaan (2.3) menjadi :

$$I = J.A$$

$$= (-\sigma\, E) 2\pi r^2$$

$$= \left(-\frac{1}{\rho}\frac{dV}{dr}\right) 2\pi r^2 \quad \text{kemudian subtitusi persamaan (L1.8)}$$

$$= \left(-\frac{1}{\rho}\frac{B}{r^2}\right) 2\pi r^2 \qquad \text{(L1.10)}$$

t diperoleh :

$$= -\frac{I\rho}{2\pi} \qquad \text{(L1.11)}$$

Apabila dilakukan substitusi persamaan (L1.11) kedalam persamaan (L1.9) maka akan diperoleh persamaan potensial listrik di setiap titik yang berhubungan dengan sumber arus pada permukaan bumi yang homogen isotropis adalah :

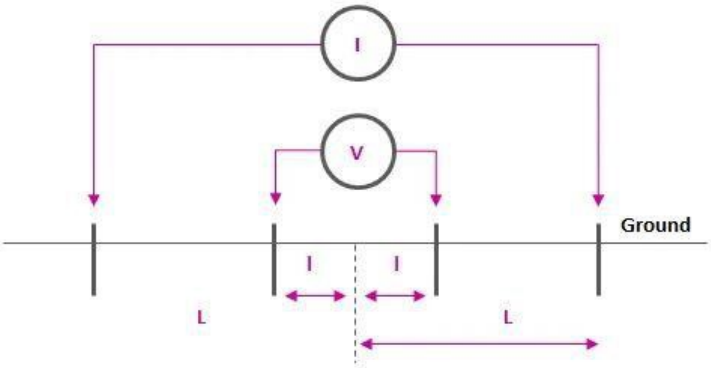
$$V = -\frac{B}{r} + C$$

$$= -\frac{\left(-\frac{I\rho}{2\pi}\right)}{r}$$

$$V = \frac{1}{r}\frac{I\rho}{2\pi} \qquad \text{(L1.12)}$$

Persamaan (L1.12) tidak lain adalah persamaan (2.16) pada BAB II.

Lampiran II : Faktor geometri konfigurasi Schlumberger



Gambar 2.8 Susunan Elektroda Konfigurasi Schlumberger (Ian, 2013)

Berdasarkan persamaan (2.15) untuk mencari nilai faktor geometri adalah :

$$k = 2\pi\left(\frac{1}{\left(\frac{1}{r_1}-\frac{1}{r_2}\right)-\left(\frac{1}{r_3}-\frac{1}{r_4}\right)}\right)$$

$$k = 2\pi\left(\frac{1}{\left(\frac{1}{L-l}-\frac{1}{L+l}\right)-\left(\frac{1}{L+l}-\frac{1}{L-l}\right)}\right)$$

$$\left(\left(\frac{1}{L-l}-\frac{1}{L+l}\right)-\left(\frac{1}{L+l}-\frac{1}{L-l}\right)\right)^{-1}$$

$$k = 2\pi\left(\frac{1}{L-l} - \frac{1}{L+l} - \frac{1}{L+l} + \frac{1}{L-l}\right)^{-1}$$

$$k = 2\pi\left(\frac{2}{L-l} - \frac{2}{L+l}\right)^{-1}$$

$$k = 2\pi\left(\frac{2(L+l) - 2(L-l)}{(L-l)(L+l)}\right)^{-1}$$

$$k = 2\pi\left(\frac{2L + 2l - 2L + 2l}{(L-l)(L+l)}\right)^{-1}$$

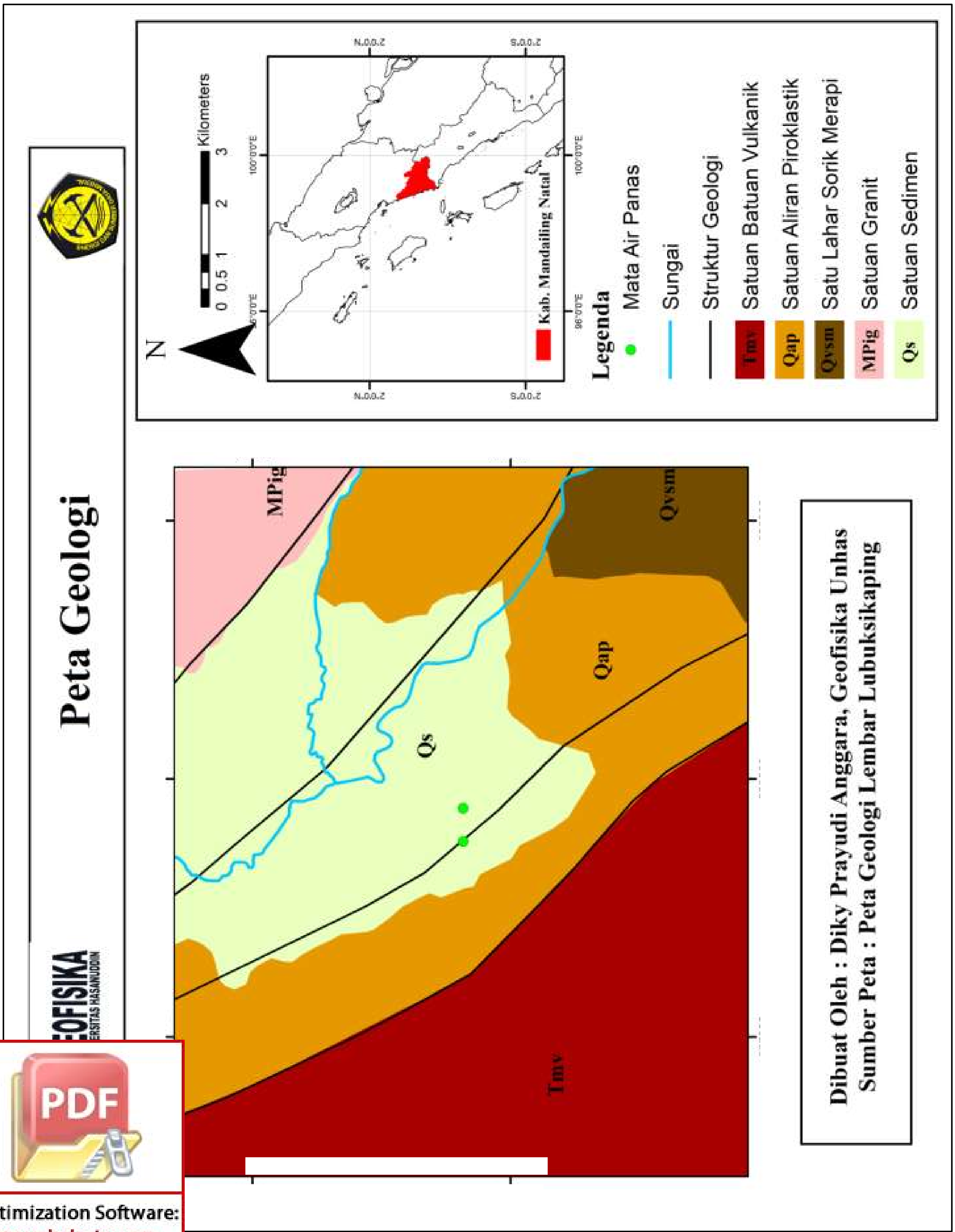
$$k = 2\pi\left(\frac{4l}{(L-l)(L+l)}\right)^{-1}$$

$$k = 2\pi\left(\frac{4l}{(L^2 - l^2)}\right)^{-1}$$

$$k = 2\pi\left(\frac{(L^2 - l^2)}{4l}\right)$$

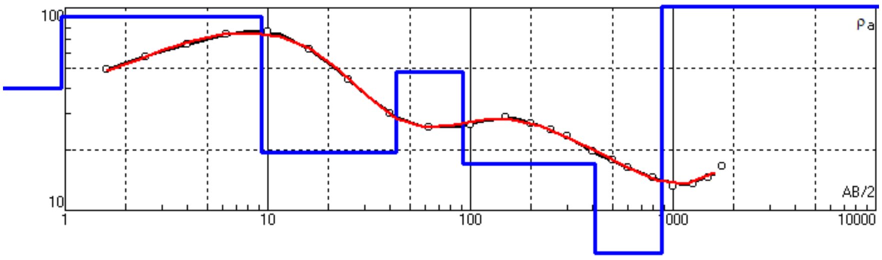
$$k = \pi\frac{L^2 - l^2}{2l}$$

Lampiran III : Peta Geologi



Lampiran IV : Hasil inversi konfigurasi Schlumberger menggunakan IPI2Win

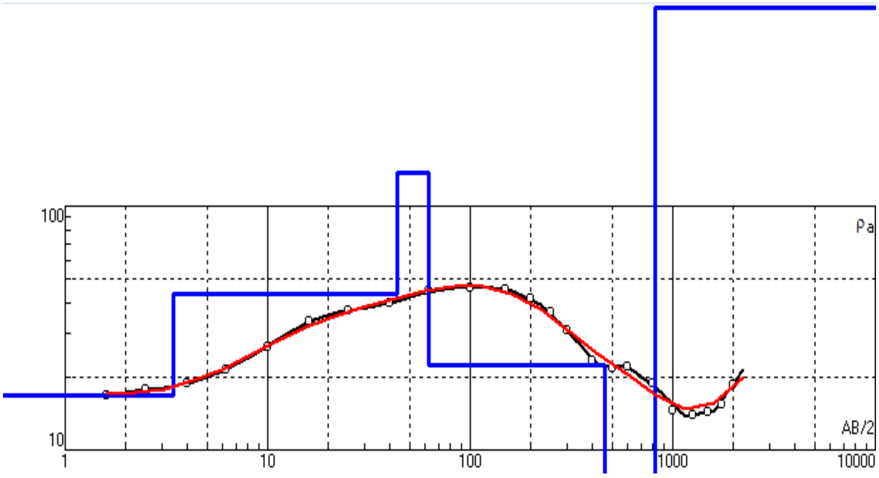
1. Titik *sounding* B3



Error = 1.66%

N	ρ	h	d	Alt
1	40.25	0.96	0.96	-0.96
2	90	8.41	9.37	-9.37
3	19.4	33.88	43.25	-43.25
4	48.41	47.92	91.17	-91.17
5	17	321.2	412.4	-412.37
6	6.187	464.7	877.1	-877.07
7	102			

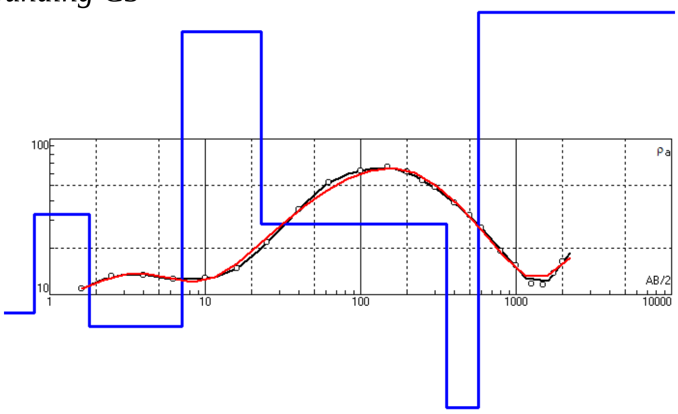
2. Titik *sounding* B5



Error = 4.39%

N	ρ	h	d	Alt
1	16.7	3.41	3.41	-3.41
2	43.8	40.1	43.5	-43.51
3	137	19.2	62.7	-62.71
4	22.4	399	462	-461.7
5	3.9	359	821	-820.7
6	1261			

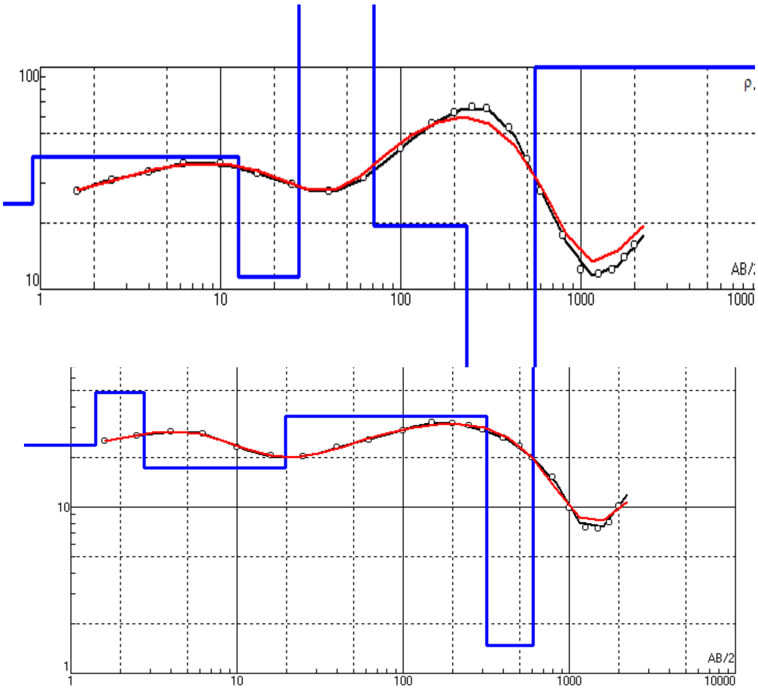
3. Titik *sounding* C3



Error = 4.81%

N	ρ	h	d	Alt
1	7.59	0.79	0.79	-0.79
2	33	0.995	1.79	-1.785
3	6.25	5.34	7.13	-7.125
4	490	15.8	22.9	-22.92
5	28.6	334	357	-356.9
6	1.88	219	576	-575.9
7	2453			

4. Titik *sounding* C4



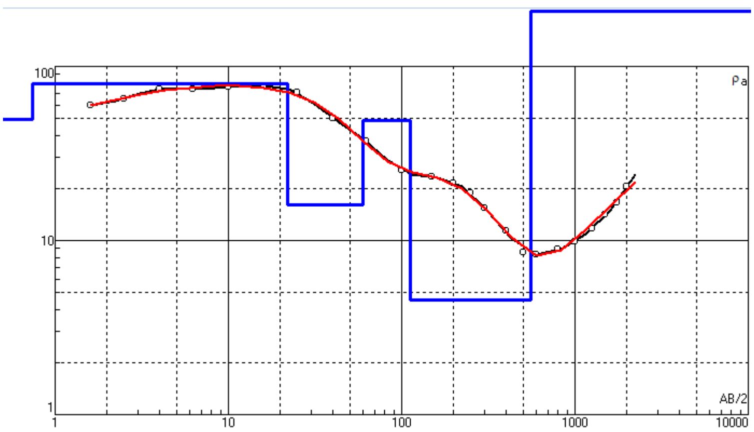
N	ρ	h	d	Alt
1	24.3	0.903	0.903	-0.903
2	39.5	11.6	12.5	-12.5
3	11.4	14.8	27.3	-27.3
4	285	43.5	70.8	-70.8
5	19.4	162	233	-232.8
6	3.73	321	554	-553.8
7	100			

Error = 6.74%

N	ρ	h	d	Alt
1	23.5	1.41	1.41	-1.41
2	48.6	1.37	2.78	-2.78
3	17.1	16.9	19.7	-19.68
4	35	299	319	-318.7
5	1.47	290	609	-608.7
6	1300			

Error = 4.05%

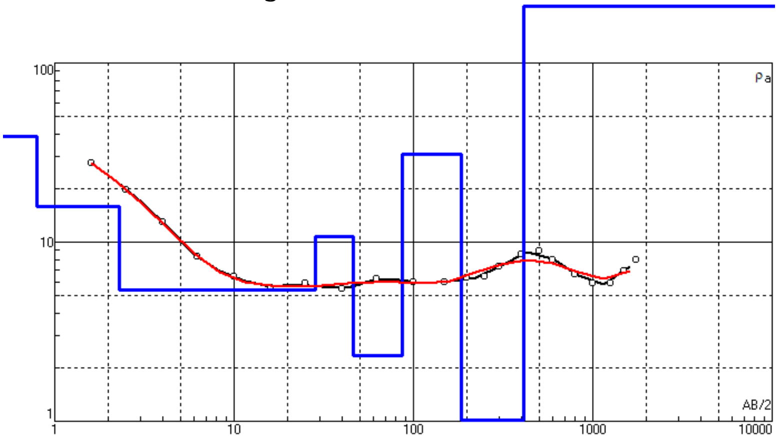
6. Titik *sounding* D3



Error = 3.2%

N	ρ	h	d	Alt
1	49.8	0.744	0.744	-0.744
2	80	21.2	21.9	-21.94
3	16	37.5	59.4	-59.44
4	49.1	52.6	112	-112
5	4.56	442	554	-554
6	1631			

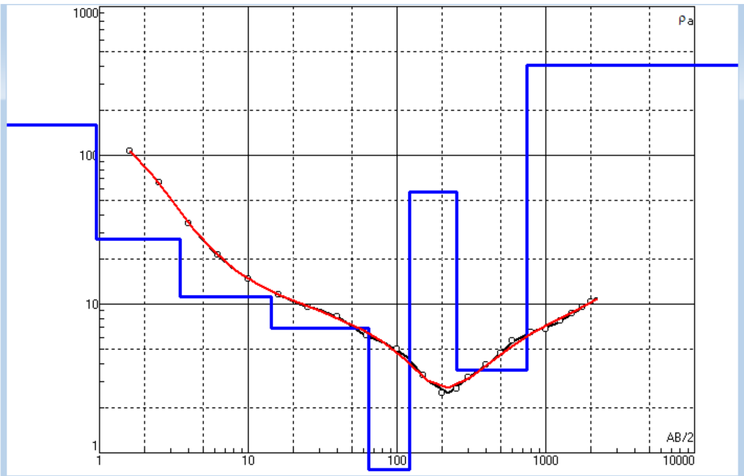
7. Titik *sounding* D4



Error = 4.04%

N	ρ	h	d	Alt
1	39.1	0.795	0.795	-0.795
2	15.7	1.51	2.31	-2.305
3	5.4	26.3	28.6	-28.6
4	10.8	17.7	46.3	-46.31
5	2.34	40.2	86.5	-86.51
6	31.1	99	186	-185.5
7	1.02	226	412	-411.5
8	731			

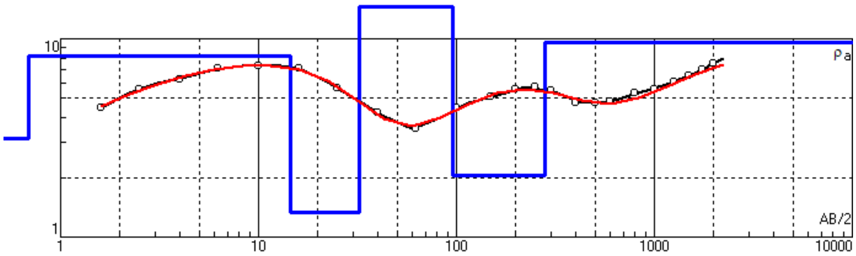
8. Titik *sounding* D5



Error = 3.32%

N	ρ	h	d	Alt
1	159	0.956	0.956	-0.956
2	27.4	2.51	3.47	-3.466
3	11.2	10.9	14.4	-14.37
4	6.87	50.2	64.6	-64.57
5	0.707	56.7	121	-121.3
6	56.7	129	250	-250.3
7	3.58	496	746	-746.3
8	403			

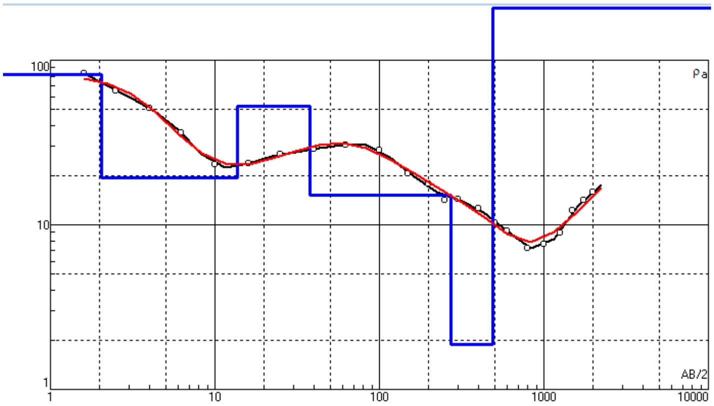
9. Titik *sounding* D6



Error = 2.82%

N	ρ	h	d	Alt
1	3.16	0.693	0.693	-0.693
2	8.14	13.9	14.6	-14.59
3	1.33	17.8	32.4	-32.39
4	14.5	63.3	95.7	-95.69
5	2.05	183	279	-278.7
6	9.64			

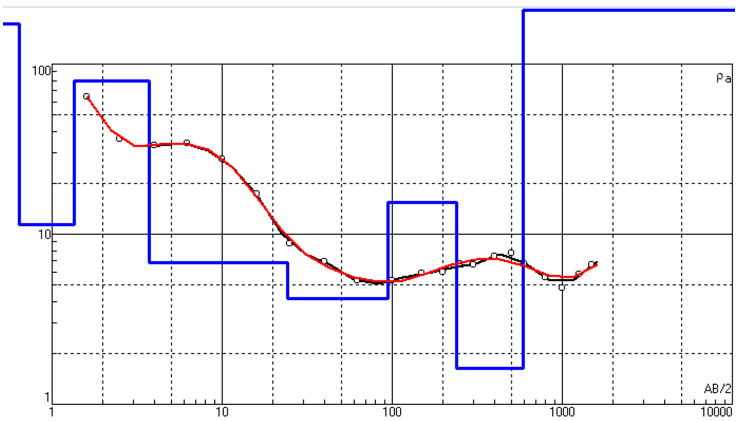
10. Titik *sounding* E3



Error = 4.85%

N	ρ	h	d	Alt
1	82.3	2.05	2.05	-2.05
2	19.4	11.7	13.8	-13.75
3	52.6	24.2	38	-37.95
4	15.2	235	273	-273
5	1.87	215	488	-488
6	1907			

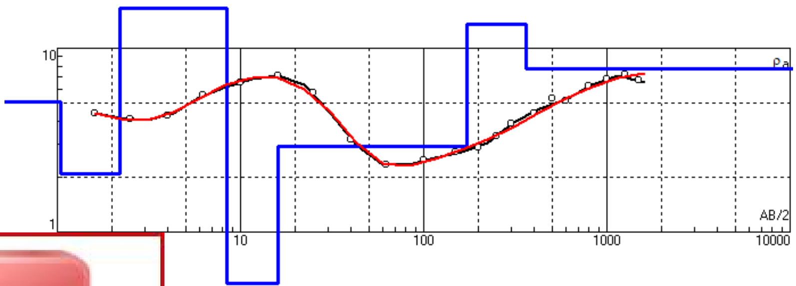
11. Titik *sounding* E2



Error = 3.5%

N	ρ	h	d	Alt
1	171	0.644	0.644	-0.644
2	11.4	0.715	1.36	-1.359
3	79.2	2.35	3.71	-3.709
4	6.84	20.6	24.3	-24.31
5	4.17	70.7	95	-95.01
6	15.3	144	239	-239
7	1.63	350	589	-589
8	268			

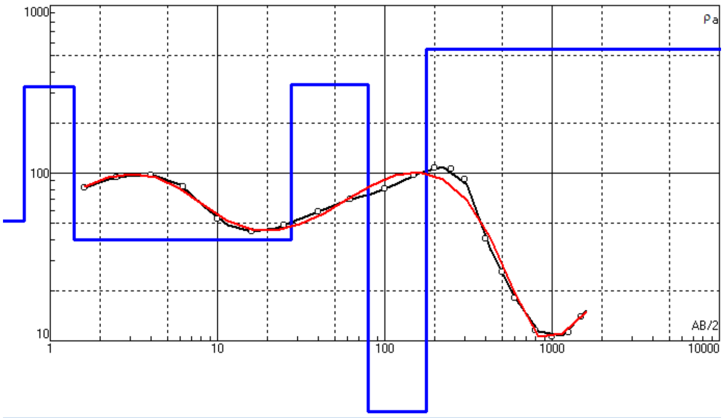
12. Titik *sounding* E5



Error = 3.56%

N	ρ	h	d	Alt
1	5.09	1.04	1.04	-1.04
2	2.06	1.17	2.21	-2.21
3	16.4	6.16	8.37	-8.37
4	0.529	7.61	16	-15.98
5	2.92	156	172	-172
6	13.5	191	363	-363
7	7.77			

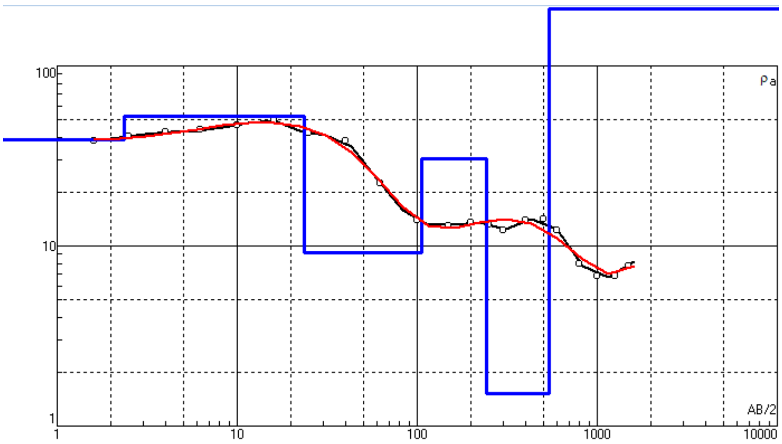
13. Titik *sounding* F3



Error = 8.29%

N	ρ	h	d	Alt
1	51.9	0.698	0.698	-0.698
2	330	0.699	1.4	-1.397
3	40.1	26.4	27.8	-27.8
4	337	52.3	80.1	-80.1
5	0.928	96.1	176	-176.2
6	548			

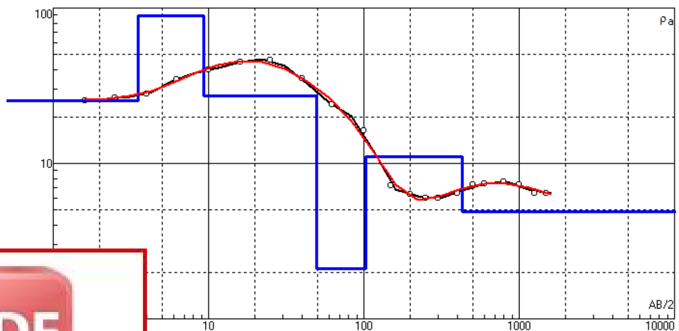
14. Titik *sounding* F4



Error = 5.14%

N	ρ	h	d	Alt
1	38.8	2.37	2.37	-2.37
2	52.4	21.1	23.5	-23.47
3	9.12	82.5	106	-106
4	30.6	136	242	-242
5	1.51	300	542	-542
6	664			

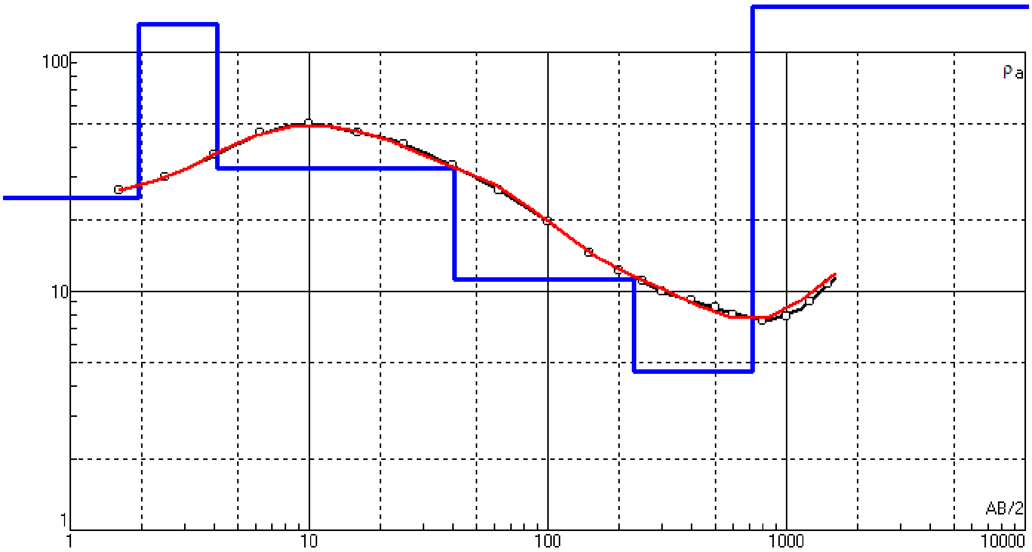
15. Titik *sounding* F5



Error = 3.69%

N	ρ	h	d	Alt
1	25.2	3.5	3.5	-3.5
2	89.6	5.79	9.29	-9.29
3	27.4	40	49.3	-49.29
4	2.09	53.4	103	-102.7
5	11	329	432	-431.7
6	4.9			

17. Titik *sounding* F6



Error = 2.59%

N	ρ	h	d	Alt
1	24.5	1.92	1.92	-1.92
2	131	2.2	4.12	-4.12
3	32.6	36.6	40.7	-40.72
4	11.2	190	231	-230.7
5	4.59	493	724	-723.7
6	155			

Lampiran VI : Data geolistrik *mapping*

1. Lintasan A

Titik Ukur	AB/2 (m)	MN (m)	Sav (mV)	Arus (mA)	K	Rho-semu (Ohm-m)
A-2000	250	100	10.80	132	**1885**	77.11
	500		5.00	246	**7775**	15.80
	800		5.20	519	**20028**	10.03
	1000		5.60	418	**31337**	10.50
A-2500	250	100	23.00	947	**1885**	22.89
	500		8.40	310	**7775**	21.07
	800		9.00	251	**20028**	35.91
	1000		8.60	231	**31337**	29.17
A-3500	250	100	12.60	242	**1885**	24.54
	500		10.00	226	**7775**	17.20
	800		9.30	637	**20028**	14.62
	1000		15.00	824	**31337**	14.26
A-4000	250	100	24.00	817	**1885**	27.69
	500		12.00	407	**7775**	22.93
	800		9.40	507	**20028**	18.57
	1000		6.00	282	**31337**	16.67
A-4500	250	100	18.50	903	**1885**	19.31
	500		16.30	776	**7775**	16.33
	800		5.00	413	**20028**	12.12
	1000		6.60	463	**31337**	11.17
A-5000	250	100	14.00	994	**1885**	13.27
	500		18.00	886	**7775**	15.80
	800		10.00	677	**20028**	14.79
	1000		10.00	571	**31337**	13.72
A-5500	250	100	15.00	975	**1885**	14.50
	500		8.00	557	**7775**	11.17
	800		10.00	682	**20028**	14.68
	1000		10.00	554	**31337**	14.14
A-6000	250	100	14.40	671	**1885**	20.23
	500		18.50	1070	**7775**	13.44
	800		5.00	506	**20028**	9.90

2. Lintasan B

Titik Ukur	AB/2 (m)	MN (m)	Sav (mV)	Arus (mA)	K	Rho-semu (Ohm-m)
B-2000	250	100	15.60	178	**1885**	41.30
	500		6.00	149	**7775**	15.66
	800		15.20	253	**20028**	12.03
	1000		7.20	531	**31337**	10.62
B-2500	250	100	6.00	107	**1885**	26.42
	500		4.60	235	**7775**	15.22
	800		6.80	544	**20028**	12.52
	1000		4.80	593	**31337**	12.68
B-3500	250	100	5.00	139	**1885**	16.95
	500		4.00	133	**7775**	11.69
	800		4.80	241	**20028**	9.97
	1000		3.60	283	**31337**	9.97
B-4500	250	100	6.20	109	**1885**	26.80
	500		10.00	294	**7775**	26.45
	800		7.80	515	**20028**	15.17
	1000		5.20	423	**31337**	9.63
B-5000	250	100	9.00	72	**1885**	23.56
	500		8.20	152	**7775**	20.97
	800		13.60	763	**20028**	17.85
	1000		5.00	213	**31337**	18.39
B-5500	250	100	13.20	64	**1885**	19.44
	500		10.50	248	**7775**	16.46
	800		16.30	941	**20028**	17.35
	1000		13.40	731	**31337**	14.36
B-6000	250	100	20.80	306	**1885**	32.03
	500		13.80	546	**7775**	19.65
	800		6.00	398	**20028**	15.10
	1000		10.70	516	**31337**	16.25

Lampiran VII : Data geolistrik *sounding* konfigurasi Schlumberger

1. Titik A1

AB/2 (m)	MN (m)	Sav (mV)	Arus (mA)	K	Rho-semu (Ohm-m)
1.6	0.5	13.8	51	**15.7**	424.6
2.5		6.0	52	**38.9**	448.6
4		4.4	52	**100**	423.7
6.2		9.8	52	**241**	454.4
10		4.3	41	**628**	329.3
6.2	2	8.5	53	**58.8**	471.6
10		3.5	41	**156**	331.9
16		10.0	88	**401**	227.6
25		10.2	89	**980**	112.3
40		8.8	174	**2,512**	63.5
25	8	14.0	91	**239**	92.0
40		15.0	172	**622**	54.2
62		7.0	161	**1,503**	32.7
100		5.2	202	**3,921**	25.2
150		8.8	196	**8,829**	19.8
100	32	9.0	204	**957**	21.1
150		15.8	195	**2,184**	17.7
200		22.6	592	**3,902**	14.9
250		11.8	506	**6,111**	14.3
300		8.0	293	**8,811**	12.0
400		10.2	465	**15,683**	8.6
500		4.6	292	**24,519**	9.7
400	100	7.4	193	**4,948**	9.5
500		7.2	293	**7,775**	9.6
600		6.5	1142	**11,231**	6.4
800		11.2	713	**20,028**	7.9
1000		10.7	916	**31,337**	9.2
1250		4.0	453	**49,009**	10.8
1000	300	8.4	915	**10,236**	9.4
1250		7.0	463	**16,127**	12.2
1500		5.5	228	**23,326**	14.1
1750		11.8	592	**31,835**	15.9
2000		7.0	412	**41,652**	17.7

2. Titik B1

AB/2 (m)	MN (m)	Sav (mV)	Arus (mA)	K	Rho-semu (Ohm-m)
1.6	0.5	10.0	79	**15.7**	49.7
2.5		9.0	61	**38.9**	57.4
4		7.0	53	**100**	66.1

6.2		6.4	56	**241**	68.9
10		4.6	47	**628**	61.5
6.2	2	8.2	56	**58.8**	86.1
10		9.4	47	**156**	77.8
16		8.0	51	**401**	62.8
25		6.0	67	**980**	43.9
40		6.3	58	**2,512**	27.3
25	8	12.6	68	**239**	44.3
40		11.3	58	**622**	30.3
62		16.3	238	**1,503**	25.7
100		11.0	130	**3,921**	33.2
150		8.7	143	**8,829**	26.9
100	32	10.0	130	**957**	36.8
150		7.7	143	**2,184**	29.4
200				**3,902**	
250		19.7	209	**6,111**	28.8
300		6.7	128	**8,811**	23.1
400		8.7	315	**15,683**	21.7
500		8.8	282	**24,519**	19.1
400	100	12.1	315	**4,948**	19.0
500		6.2	281	**7,775**	17.2
600		6.4	483	**11,231**	14.9
800		3.7	253	**20,028**	14.6
1000		9.6	598	**31,337**	12.6
1250		4.5	336	**49,009**	16.4
1000	300	12.8	599	**10,236**	10.9
1250		6.0	337	**16,127**	14.4
1500		9.0	363	**23,326**	14.5
1750		5.0	241	**31,835**	16.5

Lampiran VIII : Data geolistrik konfigurasi *head-on*

1. Lintasan 1

Station No	AB / 2 (m)	M N (m)	Reading AB (mV)	Current AB (m A)	K AB (m)	Rho AB (ohm-m)	Reading AC (mV)	Current AC (m A)	K AC (m)	Rho AC (ohm-m)	Reading BC (mV)	Current BC (m A)	K BC (m)	Rho BC (ohm-m)	Selisih (%)	Rho AC-AB (ohm-m)	Rho BC-AB (ohm-m)
H-400	200	100	19.5	60	1178	**191.44**	23	89	2356	**304.45**	10	144	2356	**40.91**	9.8	**113.01**	**-150.53**
	400	100	10.5	149	4948	**17.43**	10	485	9896	**20.40**	8.7	145	9896	**14.84**	1.089	**2.97**	**-2.59**
H-500	200	100	10.7	186	1178	**16.94**	2.7	501	2356	**1.27**	23.6	183	2356	**30.39**	6.582	**-15.67**	**13.44**
	400	100	7	85	4948	**20.37**	5.4	524	9896	**5.10**	11	83	9896	**32.79**	7.022	**-15.28**	**12.41**
	500	100	11	71	7775	**30.12**	10	511	15551	**7.61**	10	66	15551	**58.90**	10.43	**-22.51**	**28.79**
H-600	200	100	10.5	75	1178	**41.23**	17	351	2356	**57.06**	9.5	87	2356	**25.73**	0.389	**15.83**	**-15.50**
	400	100	6.8	115	4948	**14.63**	7	113	9896	**15.33**	13	493	9896	**13.05**	3.024	**0.70**	**-1.58**
	500	100	4.4	152	7775	**11.25**	4	161	15551	**9.66**	14	404	15551	**13.47**	2.77	**-1.59**	**2.22**
	600	100	9.7	637	11231	**8.55**	4.4	521	22462	**9.49**	3	234	22462	**7.20**	2.443	**0.93**	**-1.35**
H-700	200	100	15.2	194	1178	**23.08**	11	232	2356	**27.93**	16.5	541	2356	**17.97**	0.559	**4.85**	**-5.11**
	400	100	7.5	60	4948	**15.46**	3.2	58	9896	**13.65**	10.3	558	9896	**18.27**	3.206	**-1.81**	**2.80**
	500	100	4	109	7775	**7.13**	2.5	121	15551	**8.03**	6	357	15551	**6.53**	2.1	**0.90**	**-0.60**
	600	100	3	109	11231	**7.73**	5	122	22462	**9.21**	17	553	22462	**6.91**	4.24	**1.48**	**-0.82**
H-800	200	100	8.3	117	1178	**20.89**	14.8	117	2356	**29.80**	28.8	456	2356	**14.88**	6.937	**8.91**	**-6.01**
	400	100	10	480	4948	**10.31**	16	604	9896	**13.11**	9	730	9896	**6.10**	6.835	**2.80**	**-4.21**
	500	100	5	105	7775	**9.26**	3.8	115	15551	**12.85**	8.7	537	15551	**6.30**	3.414	**3.59**	**-2.96**
	600	100	3.7	110	11231	**9.44**	4.3	224	22462	**10.78**	5.2	181	22462	**6.45**	8.765	**1.34**	**-2.99**
	800	100	3.5	118	20028	**14.85**	4	219	40055	**18.29**	5	237	40055	**8.45**	9.971	**3.44**	**-6.40**
H-900	200	100	23.4	281	1178	**24.53**	11.5	300	2356	**22.58**	19	829	2356	**27.00**	1.078	**-1.95**	**2.47**
	400	100	12.5	343	4948	**9.02**	15.8	503	9896	**15.54**	5	518	9896	**4.78**	12.68	**6.53**	**-4.24**
	500	100	4.3	117	7775	**7.14**	11.4	469	15551	**9.45**	4	136	15551	**4.57**	1.851	**2.31**	**-2.57**
	600	100	2.7	113	11231	**6.71**	2.7	183	22462	**8.29**	6.6	274	22462	**5.41**	2.073	**1.58**	**-1.30**
	800	100	3.8	325	20028	**5.85**	5.7	820	40055	**6.96**	4.5	414	40055	**4.35**	3.363	**1.11**	**-1.50**

H-1000	200	100	5.8	162	1178	**10.54**	5	170	2356	**17.32**	16.2	833	2356	**4.58**	3.878	**6.78**	**-5.96**
	400	100	2.3	89	4948	**3.20**	4.2	241	9896	**1.72**	6.4	132	9896	**4.80**	2.021	**-1.47**	**1.60**
	500	100	11.6	292	7775	**7.72**	18.4	735	15551	**9.73**	5.4	381	15551	**5.51**	1.306	**2.01**	**-2.21**
	600	100	4.3	176	11231	**6.86**	29.9	844	22462	**7.96**	4.3	201	22462	**4.81**	6.974	**1.10**	**-2.05**
	800	100	9	321	20028	**5.62**	7	467	40055	**6.00**	8	712	40055	**4.50**	6.463	**0.39**	**-1.11**
H-1100	200	100	7	179	1178	**11.52**	7	225	2356	**18.33**	6	333	2356	**4.25**	2.015	**6.81**	**-7.27**
	400	100	6.6	158	4948	**10.33**	13.3	436	9896	**15.09**	4.5	208	9896	**5.35**	1.078	**4.76**	**-4.98**
	500	100	7.7	160	7775	**9.35**	15.4	469	15551	**12.77**	8.2	229	15551	**5.57**	2.007	**3.41**	**-3.79**
	600	100	3	134	11231	**6.29**	7.3	417	22462	**9.83**	3.3	173	22462	**4.28**	12.27	**3.54**	**-2.00**
	800	100	3	107	20028	**5.62**	5	277	40055	**7.23**	7.8	687	40055	**4.55**	4.875	**1.61**	**-1.07**
H-1200	200	100	11	187	1178	**6.93**	9	515	2356	**10.29**	6.8	221	2356	**3.62**	0.426	**3.36**	**-3.31**
	400	100	7	125	4948	**6.93**	9.2	253	9896	**9.00**	4.8	227	9896	**5.23**	2.695	**2.07**	**-1.70**
	500	100	4.3	131	7775	**6.38**	7.7	327	15551	**9.15**	4	183	15551	**3.40**	1.626	**2.77**	**-2.98**
	600	100	2.7	121	11231	**6.27**	8	212	22462	**8.48**	3.8	231	22462	**3.70**	2.866	**2.21**	**-2.57**
	800	100	5.6	581	20028	**4.83**	7.5	508	40055	**5.91**	5.5	680	40055	**3.24**	5.164	**1.09**	**-1.59**
H-1300	200	100	6.4	105	1178	**3.59**	22.4	832	2356	**3.17**	8	113	2356	**4.17**	2.246	**-0.42**	**0.58**
	400	100	6.2	171	4948	**4.49**	16	742	9896	**5.33**	6	193	9896	**3.08**	6.23	**0.85**	**-1.41**
	500	100	6.2	286	7775	**4.21**	5	307	15551	**6.33**	8	1122	15551	**2.77**	8.019	**2.12**	**-1.44**
	600	100	4.5	317	11231	**3.99**	7	299	22462	**5.26**	7	655	22462	**2.40**	3.918	**1.27**	**-1.59**
	800	100	4	221	20028	**3.62**	5	474	40055	**4.23**	9	1386	40055	**2.60**	5.843	**0.60**	**-1.02**
H-1400	200	100	8.7	110	1178	**4.66**	19	545	2356	**4.11**	5.6	123	2356	**5.36**	1.644	**-0.55**	**0.70**
	400	100	16.5	488	4948	**4.18**	19.3	935	9896	**5.11**	6.3	489	9896	**3.19**	0.847	**0.92**	**-1.00**
	500	100	12.6	576	7775	**4.25**	7.8	520	15551	**5.83**	9.5	1333	15551	**2.77**	1.151	**1.58**	**-1.48**
	600	100	7.5	197	11231	**4.28**	5.2	187	22462	**6.25**	6	1214	22462	**2.78**	5.496	**1.97**	**-1.50**
	800	100	6.4	321	20028	**3.99**	7	569	40055	**4.93**	10	1281	40055	**3.13**	0.858	**0.93**	**-0.87**
H-1500	200	100	7.5	105	1178	**4.21**	7.2	234	2356	**3.62**	5.7	145	2356	**4.63**	1.889	**-0.58**	**0.42**
	400	100	10.5	640	4948	**4.06**	4.4	495	9896	**4.40**	5.2	745	9896	**3.45**	3.276	**0.34**	**-0.61**
	500	100	8.4	715	7775	**4.57**	7.5	525	15551	**5.55**	6.7	755	15551	**3.45**	1.433	**0.99**	**-1.12**
	600	100	4.6	275	11231	**4.70**	5.5	225	22462	**5.49**	10	663	22462	**3.39**	5.478	**0.79**	**-1.31**
	800	100	6.7	268	20028	**5.01**	3.4	246	40055	**5.54**	7.3	685	40055	**4.27**	2.088	**0.53**	**-0.74**

H-1600	200	100	4.4	102	1178	**5.08**	3.2	125	2356	**6.03**	8.8	520	2356	**3.99**	1.424	**0.95**	**-1.09**
	400	100	7.4	633	4948	**5.78**	7	486	9896	**7.13**	5.8	735	9896	**3.90**	4.646	**1.34**	**-1.88**
	500	100	8	588	7775	**5.29**	3.6	450	15551	**6.22**	4.2	784	15551	**4.17**	1.825	**0.93**	**-1.12**
	600	100	14.5	713	11231	**5.71**	6.2	511	22462	**6.81**	6	793	22462	**4.25**	3.134	**1.10**	**-1.46**
	800	100	4.2	121	20028	**6.95**	4.8	225	40055	**8.55**	4	750	40055	**5.34**	0.127	**1.59**	**-1.61**
H-1700	200	100	4.6	112	1178	**4.84**	2.7	109	2356	**5.84**	13.8	809	2356	**4.02**	1.844	**1.00**	**-0.82**
	400	100	7.4	619	4948	**5.92**	2.6	439	9896	**5.86**	4.8	801	9896	**5.93**	0.332	**-0.05**	**0.01**
	500	100	10	585	7775	**6.65**	3.8	455	15551	**6.49**	6.3	733	15551	**6.68**	0.863	**-0.15**	**0.04**
	600	100	6.6	513	11231	**7.22**	4.8	435	22462	**6.20**	4.6	655	22462	**7.89**	2.529	**-1.03**	**0.66**
H-1800	200	100	5.4	94	1178	**3.38**	4.8	183	2356	**3.09**	13.8	816	2356	**3.98**	4.537	**-0.29**	**0.60**
	400	100	9.8	226	4948	**5.36**	3.8	194	9896	**4.85**	17	733	9896	**5.74**	1.344	**-0.52**	**0.37**
	500	100	7	516	7775	**5.27**	4.4	468	15551	**3.66**	10.4	626	15551	**6.46**	4.116	**-1.62**	**1.18**
	600	100	18.2	796	11231	**6.42**	4.2	553	22462	**4.27**	10.5	773	22462	**7.63**	7.374	**-2.15**	**1.21**
H-1900	200	100	6.8	116	1178	**3.45**	8	285	2356	**3.31**	12.8	808	2356	**3.73**	1.932	**-0.15**	**0.28**
	400	100	5	127	4948	**4.87**	4.6	305	9896	**3.73**	14.2	635	9896	**5.53**	4.892	**-1.14**	**0.66**
	500	100	3.8	117	7775	**6.31**	2.8	252	15551	**4.32**	13.8	756	15551	**7.10**	9.586	**-1.99**	**0.78**
H-2000	200	100	11.6	222	1178	**3.08**	4.2	190	2356	**2.60**	11.6	764	2356	**3.58**	0.42	**-0.47**	**0.50**
	400	100	4.7	245	4948	**4.75**	4.3	294	9896	**3.62**	8.8	787	9896	**5.53**	3.592	**-1.13**	**0.79**