

การประยุกต์ใช้โปรแกรมคอมพิวเตอร์เพื่อสร้างแบบจำลองคุณภาพบางประการ
ของถ่านหินจากแหล่งสินปูน จังหวัดนครศรีธรรมราชและ
แหล่งสะบ้าย้อย จังหวัดสงขลา

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APPLICATION OF COMPUTER PROGRAMS TO SOME COAL QUALITY MODELING
AT SIN PUN DEPOSIT, CHANGWAT NAKHON SI THAMMARAT AND
SABA YOI DEPOSIT, CHANGWAT SONGKHLA

Ms. Bussakorn Pongorapin



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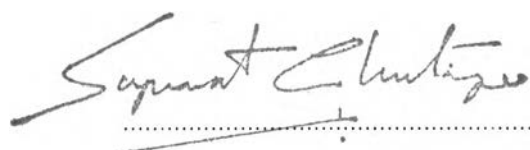
By Mrs. Bussakorn Pongorapin

Department Geology

Thesis Advisor Punya Charusiri, Ph.D.

Thesis Co-advisor Assistant Professor Sombat Yumuang, M.Sc.

Accepted by the Graduate School, Chulalongkorn University in Partial Fulfillment
of the Requirements for the Master's Degree



Dean of Graduate School

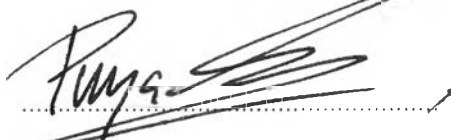
(Professor Supawat Chutivongse, M.D.)

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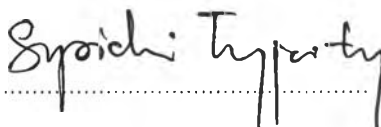
Thesis Advisor

(Punya Charusiri, Ph.D.)



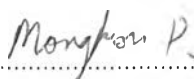
Thesis Co-advisor

(Assistant Professor Sombat Yumuang, M.Sc.)



Member

(Supichai Tungjaitrong, Ph.D.)



Member

(Mongkon Pornchunchoovong, M.B.A.)

พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

บุษกร พงศ์อรพินท์ : การประยุกต์ใช้โปรแกรมคอมพิวเตอร์เพื่อสร้างแบบจำลองคุณภาพบาง
ประการของถ่านหินจากแหล่งสินปูน จังหวัดนครศรีธรรมราช และแหล่งสะบ้าย้อยจังหวัดสงขลา
(APPLICATION OF COMPUTER PROGRAMS TO SOME COAL QUALITY MODELING AT SIN PUN
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ข้อมูลหลุมเจาะจากพื้นที่สินปูน 1.181 หลุม และจากพื้นที่สะบ้าย้อย 581 หลุม อยู่ทางภาคใต้
ของประเทศไทย ได้ถูกนำมาคัดเลือกเฉพาะหลุมเจาะที่มีผลวิเคราะห์เคมีของคุณภาพถ่าน ซึ่งประกอบไปด้วย
ผลวิเคราะห์ในเรื่องปริมาณน้ำ (%) , ปริมาณความร้อน (Kcal/Kg) , ปริมาณความชื้น (%) ปริมาณ
กำมะถัน (%) , และความหนาแน่น (g/cc) ของถ่าน โดยใช้โปรแกรมคอมพิวเตอร์ในการทำงาน 5
โปรแกรมด้วยกัน ได้แก่ โปรแกรมวัลแคน (VULCAN) , โปรแกรมฟอกซ์โปร (FoxPro) , โปรแกรม
จีโออีเอส (Geo_EAS) โปรแกรมเซอร์เฟอร์ (SURFER) , และโปรแกรมเอ็กซ์เซล (EXCEL)
โดยข้อมูลทางด้านผลวิเคราะห์ทางเคมีของถ่าน ได้ถูกจัดเปลี่ยนรูปแบบการเก็บในฐานข้อมูลใหม่โดยทำการส่ง
ผ่านข้อมูลจากโปรแกรมวัลแคน (VULCAN) ไปสู่โปรแกรมฟอกซ์โปร (FoxPro)

โปรแกรมจีโออีเอส (Geo_EAS) ซึ่งจัดว่าเป็นโปรแกรมหลักที่สำคัญในการวิเคราะห์หาความแปร
ปรวน (variogram) อันเป็นหัวใจหลักของงานวิจัยนี้ ได้ถูกนำมาเป็นเครื่องประกอบในการทำงานโดย
อาศัยตัวแปรหลักทางด้านคุณภาพและปริมาณของการแปรปรวน มีค่าผลวิเคราะห์บางส่วนที่แสดงลักษณะของ
แบบจำลองทรงกลม (spherical model) เป็นส่วนใหญ่ แบบจำลองเชิงเส้น (linear model) และ
แบบจำลองไร้ความสัมพันธ์ (nugget effect model) ซึ่งผลของการวิเคราะห์ในครั้งนี้ สามารถช่วย
อธิบายถึงลักษณะและทิศทางของการแปรปรวนว่าน่าจะมีความสัมพันธ์ในทิศทางเดียวกับทิศทางการสะสมตัว
ของถ่าน ซึ่งทิศทางที่ไม่เป็นไปตามแนวเดียวกันนี้ อาจบ่งบอกถึงลักษณะทางกายภาพในการเก็บตัวอย่างและ
วิเคราะห์ตัวอย่าง

จากการศึกษาโดยการวิเคราะห์ความแปรปรวนนี้ ได้ถูกนำไปใช้ในการประมาณค่าคุณภาพของถ่าน
หินของทั้งสองแหล่ง ด้วยวิธีคิกกิง (kriging) โดยใช้โปรแกรมเซอร์เฟอร์ เป็นโปรแกรมในการ
ประมาณค่า ซึ่งผลของการประมาณค่านี้สามารถนำไปใช้ในการศึกษาข้อมูลทางด้านธรณีวิทยาการสำรวจเจาะ
และนำไป ประยุกต์ในด้านการวางแผนการทำเหมืองต่อไป

ภาควิชา ธรณีวิทยา
สาขาวิชา ธรณีวิทยา
ปีการศึกษา 2541

ลายมือชื่อนิติต บุษกร พงศ์อรพินท์
ลายมือชื่ออาจารย์ที่ปรึกษา พงศ์อรพินท์
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม สมบัติ อยู่เมือง

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MODEL/SIN PUN/ SABA YOI/ AMPHOE/CHANGWAT APPLICATION OF COMPUTER PROGRAMS TO SOME COAL QUALITY MODELING AT SIN PUN DEPOSIT, CHANGWAT NAKHON SI THAMMARAT AND SABA YOI DEPOSIT, CHANGWAT SONGKHLA) THESIS ADVISOR : DR. PUNYA CHARUSIRI, PH.D. THESIS CO-ADVISOR : ASSISST.PROF. SOMBAT YUMUANG, M.Sc. 426 pp. ISBN 974-637-698-5.

Data from a total of 1,811 coal-bearing drill holes from the Sin Pun deposit (SP) and of 581 holes from the Saba Yoi deposit (SB), southern Thailand were carefully selected for analysis using 5 computer software programs. The currently available lithological data together with qualified analytical results (i.e.ash content, moisture content, calorific value, sulphur content, and density) were then sorted, formatted, stacked, processed, and rearranged into database files (with 19 entries) using the VULCAN (version 3.2) and FoxPro (plus, version 2.6) programs. The pre-existing unformatted information particularly the analytical results from Sin Pun and Saba Yoi (56 and 48 drill holes respectively), were transferred successively into the VULCAN program.

The variogram analysis, forming the essential part of this current research, was subsequently applied using the Geo EAS software program in order to set up the quantified and qualified parameters with vector scales for model construction. The variogram analysis indicates that results from both SP and SB coal deposits mostly fit well with the spherical model with minority of nugget-effect, gaussian and linear models. The results from the analysis in conjunction with the trend of mutually relevant/inter-related information was interpreted to follow the attitude of major coal seam (or along depositional strikes). The deviation in trends and the distribution of unorientated and unrelated represented by coal physical characteristics and partly by sampling and analytical procedures. The geostatistical parameters resulted from spherical model synthesis were then used for coal-quality estimation. The kriging method was finally utilized through the SURFER program (version 32), and as a result, model applied to further geological investigation, drilling exploration, and mine-planning procedures can be delineated.

ภาควิชา.....ธรณีวิทยา

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ลายมือชื่อนิสิต.....^{บุตร} ทวีชัยรัตน์

ลายมือชื่ออาจารย์ที่ปรึกษา.....^{ผศ. ยงสิทธิ์}

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....^{จ. ยงสิทธิ์}

ต้นฉบับ หน้าขาดหาย

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