**FutureGen Subsurface Technical Data Master ReadMe**

**Data Name: FutureGen Subsurface Technical Data**

Data Format: Zip folders with many different file types - see chart below for details

Date Published: 06/30/2020

Date of last record update: 6/26/2020

Spatial reference system: Variable depending on file

Spatial Extent: Morgan County, Illinois, USA. Some contextual data from the whole of the state of Illinois is also included.

Description: This is the FutureGen Site subsurface technical data, produced as part of the FutureGen 1.0 and 2.0 projects. The data consists of a variety of surface and subsurface data, including geologic data, contextual surface data, background information, reports, presentations, and others. The data can be downloaded as the zip files listed below in the chart. The types of data included in each zip are described in the table below, and main file extensions are included for user understanding. The whole submission can also be downloaded, but be advised, the data set is large. Zipped folders have been organized to simplify the data selection and download process. Specific read me files can be found within zipped folders and subfolders.

For more information about the FutureGen project please refer to: Gilmore, T J, A Bonneville, V Vermeul, F Spane, M E Kelley, C Sullivan, J Hoffmann, Overview of the CO2 Geological Storage Site for the FutureGen Project in Morgan County Illinois, USA, Energy Procedia, Vol 63, pp 6361-6367, (2014) (<https://doi.org/10.1016/j.egypro.2014.11.671>)

Data Source: Data was provided by the FutureGen project, under the direction of the project manager Jeffery Hoffman (Jeffery.Hoffman@netl.doe.gov)

Source Use Restrictions: Creative Commons Attributes License should be considered. Citation for dataset and DOI is required for reuse.

Data curation and contact: Data sets included here are actively curated by Andrew Bean and Paige Morkner (LRST contract with National Energy Technology Laboratory, Albany OR). Contact at: Andrew.Bean@netl.doe.gov and Paige.Morkner@netl.doe.gov

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| --- | --- | --- | --- |
|  **Zipped Folder Name** | **Types of data included** | **File Extensions** | **Category** |
| **T8 - Calculations** | * FG-02-CALC-0001, Rev. 0 - Birkholzer and AOR-Eqn 1 and 2 Pressure-Worksheet-3-3-14
* FG-02-CALC-0002, Rev. 0 - Final FAS Nicot EGS FutureGen 3-6-14
* FG-02-CALC-0003, Rev. 0 - Preliminary Prediction of Land-Surface Deformation Associated with CO2 Injection at the FutureGen Site
* FG-02-CALC-0003, Rev. 1 - Preliminary Prediction of Land Surface Deformation Associated with CO2 Injection
* FG-02-CALC-0004, Rev. 0 - Baseline Monitoring and Barometric and Earth-Tide Analysis for FutureGen Well FGA-1
* FG-02-CALC-0005, Rev. 0 - Baseline Monitoring Spectral Analysis for FutureGen Well FGA-1
* FG-02-CALC-0006, Rev. 0 - FutureGen Well FGA-1 Static Pressure Data Worksheet
* FG-02-CALC-0007, Rev. 0 - FutureGen Well FGA-1 Static Fluid Temperature Data Worksheet
* FG-02-CALC-0008, Rev. 0 - GM2 Basement HF Test FGA-1
* FG-02-CALC-0009, Rev. 0 - GM4 Basement HF Test FGA-1
* FG-02-CALC-0010, Rev. 0 - GM6 Basement HF Test FGA-1
* FG-02-CALC-0011, Rev. 0 - GM7 Basement HTPF Test FGA 1
* FG-02-CALC-0012, Rev. 0 - GM9 Basement HTPF Test FGA-1
* FG-02-CALC-0013, Rev. 0 - GM11B Mt Simon HF Test FGA-1
* FG-02-CALC-0014, Rev. 0 - GM12 Mt Simon HF Test FGA-1
* FG-02-CALC-0015, Rev. 0 - GM13 Mt Simon HF Test FGA-1
 | .xlsx  |  |
| **T9 – 2D Seismic** | * Readme\_FGA2 Seismic Acquisition, Processing, Reprocessing ,and Interpretation Files
* READ ME NOTES ON SEISMIC DATA
* Morgan Pre Stack Migration L101
* Fr101 (.sgy files)
* Battelle FutureGen Taylorville Report January 2011
* Battelle FutureGen Douglas Report Feb 2011
* Battelle FutureGen Morgan Report march 2011
* FutureGen 2012 Year End Report
* FutureGen Squash Plot Report Feb 2011
* FutureGen 2012 Year End Report
 | .pdf.txt.sgy.docx.doc | 2D Seismic |
| **T10 – FGA-1 Borehole Geophysical Log Data** | * Wireline logs
* MDT Files
* Resistivity and Ultrasonic based image logs
* ELAN processed logs
* Processed logs: Anisotorpic and elastic moduli
* Geomechanical Field test logs
* Mud Log
 |  .pdf.txt.xlsx.las.tif.pds.asc.dat.pptx |   |
| **T11.1 - Core Lab Data** | * Core Photography at different core lengths
* CT Scanning of Plug Samples
* Geologic and Petrographic Analysis
* High Pressure Mercury Injection HPMI
* Hydraulic Fracture Design Parameters
* Residual Gas Saturation CCI
* Routine Plug Analyses
* Spectral Gamma
* Steady-State Relative Permeability
* Threshold Entry Pressure
* Uniaxial Pore Volume Compressibility
 |  .jpg.xls.xlsx.doc.pdf |  FGA-1 Core and Core Analysis Data (T11) |
| **T11.2 - Thermal Conductivity** | * Thermal Conductivity
 | .txt.xlsx |  |
| **T11.3 - XRF Analyses** | * XRF Analysis
 | .pdf.txt.xlsx |  |
| **T12.1 - Gravity Data** | * Gravity Survey
* Bouguer anomaly
* Arc database with Bouguer anomaly info
* Airmag data
* Gravity data - points, CBA map, info (arc database)
* Grid Outline
* Nov 2011 Gravity Survey
* Planned Gravity Stations
* Plume 30yrs 9/19/2012 (gravity model projected on seismic)
* Precambrian Basement modeling and base files
* SW-NE profiles
* Roads (Arc Files)
* Topographic 10m
* Well data
* Gravity reference stations
* USGS-data
 | .txt.zip.xlsx.csv.las.pdf | Gravity (T12) |
| **T12.2 - Gravity Modeling** | * FutureGen Gravity memo
 | .pdf | Gravity (T12) |
| **T13 – 2013 FGA-1 VSP seismic program** | * 2013 VSP Schlumberger reports
* 2014 Hardage Rock Physics report - detection of CO2
 |  .txt.pdf |   |
| **T15.1 - Pressure-Depth Analysis** | * Pressure depth analysis
* Raw data files
* Support data documents
 |   | Hydrogeological Tests (T15) |
| **T15.2 - Hydrologic Packer Test Files** | * FG1 hydraulic packer test files
 | .zip.docx | Hydrogeological Tests (T15) |
| **T15.3 - Fluid-Logging Test Files** | * Bottom gauge, top gauge, baseline out pressure
 | .docx.zip.csv.las.pds.xlsx | Hydrogeological Tests (T15) |
| **T15.4 - Pressure Monitoring** | * Monitoring data from the characterization well
 | .zip | Hydrogeological Tests (T15) |
| **T15.5 - Hydro Testing Photos** | * Hydrological Testing Photos
 | .jpg | Hydrogeological Tests (T15) |
| **T16 – Field Geomechanical Tests** | * Daily test activity description files
* Data calculation worksheets
* I age logs used for minifrac
* Fluidsystem - surface injection-data files
* NAVIGATOR Downhole realtime pressure gauge data files
* PIONEER Downhold memory pressure gage data files
* SLB Wireline
 | .pdf.xlsx.txt.csv  |   |
| **T17 – Atmospheric Monitoring** | * 2014-2015 data Q4
* MetStation data
 | .xslx.zip |   |
| **T18 – GW SW Monitoring** | * Characterization Well Monitoring
* Surficial Aquifer and Surface water monitoring
* Field activity report of surficial aquifer sampling
* ISGS Report 2012-6
* Literature relevant to monitoring
* Pictures: April 2015
 | .jpg.pdf.docx.xlsx.xls.txt |   |
| **T19 – Soil Gas Monitoring** | * Photos
* Illinois college preconcentration experiments
* Greenhouse gas analyzer acceptance testing
* Noble gas release tests
* Sorption column studies
* Soil gas collector design testing
* Soil gas monitoring plan
 | .zip  |   |
| **T20 – MVA Design Basis** | * Reports
* Supporting data
 | .pdf.zip |   |
| **T21 – Reservoir Model UIC Permit** | * STOMP geologic model
* Bedrock Geology
* Horizontal Permeability
* Vertical Permeability
* Porosity
* Formation Compressibility
* Formation Density
* Reservoir Model Rev0.1
* UIC Permit report
* UIC permit application figures
* Simulation data report
* Local Sensitivity simulation
 |  .zip.sbatch.pdf.dat.mcr.png.plt.phy.map.lay.jpg.eqn.csh.xlsx, .xls.sty.msg.avi.db.docx |   |
| **T21a – Reservoir Model Planned Revisions** | * Data Readiness reviews - DRR meeting minutes 2014
 | .pdf.txt |   |
| **T22 – USDW Model** | * USDW Model
 | .pdf.zip.xlsx.msg.exe |   |
| **T23 – Illinois Wells Geophysical Logs** | * Well logs
* Dl Manifests
* Maps
* Text Documents
 |  .txt.jpg.dll.man.tif.pdf |   |
| **T24.1 - Core Photos** | * Core photos
 |  .jpg.mov.png |  FG-1 Shallow Well Data (T24) |
| **T24.2 - Reports** | * Reports on cores and wireline logs
 | .pdf |  FG-1 Shallow Well Data (T24) |
| **T24.3 - Wireline Logs** | * Wireline logs
 | .pdf .xlsx  |  FG-1 Shallow Well Data (T24) |
| **T25 – Injection Wellhead Sampling** | * Potential sampling locations
* Drawings
* Reports
* Sampling images
* Sampling procedure documents
* CO2 Properties
 |  .jpg.webarchive.pdf.vwx.txt |   |
| **T26.1 - AOR USDW Geomodel** | * Geomodel
* Deep aquifer info
* EarthVision models and data
* Morgan full strat UIC (patrel), Zone ID
* Ocean, I2DW-Templates
 |  .dat.pdf.pet.xlsx.pptx.tif.2grd.sh.txt.dat.ptd.settings.dataSource.xml.bak.ico.ini.log.ply.znclr.ann.fml.ps.ev\_.3grpt.3grd.tif |  Geomodel (T26) |
| **T26.2 - Reservoir Geomodel** | * Gravity data inputs
* 100mi EarthVision 2014 model
* Model data
* EIS reservoir model 2012 input files
* EIS reservoir model 2012 STOMP input UTM
* Layered EC MS 100mi EarthVision Model 2012 UTM
 | .ply.ann.2grd.faces.znclr.vue.seq.hg.dat.wfp.log.seq.pptx.png.path.pdf | Geomodel (T26) |
| **T27 – Ecological Monitoring** | * CropScape
* Field Units
* Landsat-NDVI Normalized
* Landsat-NDVI Raw
* Spectral Data ASCII
* Spectral Data Raw
* Vegetation
 |  .dbf.img.rrd.txt.xml.asd.tif.tfw.ovr.prj.sbn.sbx.shp |  |
| **T28 – Land Surface Deformation** | * Data-worksheets
* STOMP Modeling Layer Predicted Pressures
* Well-FGA-1 Baseline Pressure Monitoring Data
* Well-FGA-1 Wireline Geophysical Logs
 |  .docx.txt.xlsx.csv.las.pdf |   |
| **T30 – Relevant regional well and rock data** | * Criswell Sample Set Photos
* Waverly Field Data
* 137 Morgan field well logs
 |  .jpg.png.pdf.xls.xlsx.tif |  |
| **T31.1 - Seismicity** | * Regional earthquake history
 |  .db.png.txt.pdf.xlsx | Relevant graphics maps and GIS data (T31) |
| **T31.2 - Basement** | * Documents describing the basement rock and maps
 | .db.png.txt.xlsx.jpg.pdf.doc | Relevant graphics maps and GIS data (T31) |
| **T31.3 - Structural Features** | * Images and documents describing the regional structural features
 | .db.jpg.txt.zip | Relevant graphics maps and GIS data (T31) |
| **T31.4 - Eau Claire Structure and Thickness** | * Eau Claire unit structural data
 | .db.jpg.txt.zip | Relevant graphics maps and GIS data (T31) |
| **T31.5 - MtSimon** | * Mt Simon unit structural data
 | .db.jpg.txt.zip.png | Relevant graphics maps and GIS data (T31) |
| **T31.6 - Glacial Drift Thickness** | * Thickness information about the glacial drift
 | .db.png.txt | Relevant graphics maps and GIS data (T31) |
| **T31.7 - Residence Properties** | * 5x5 mile survey area properties and residence surface data information
 | .xml.txt.sid.shx.shp.sdw.prj.dbf.aux.pdf.xls, .xlsx.db | Relevant graphics maps and GIS data (T31) |
| **T31.8 - Illinois Geospatial Datasets** | * Roads
* Lakes + Water bodies
* Aeromagnetic data
* Anticlines, synclines, monoclines
* Bedrock geology 2005 for Illinois
* Bedrock topography for Illinois
* Bedrock Valleys for Illinois
* Coal mine data
* Illinois county boundaries
* Illinois drift thickness
* 30m Digital Elevation Model (DEM)
* 30m DEM hillshade
* Faults, grabens, flexures
* Major aquifers
* Illinois municipalities
* PLSS Townships
* Illinois sections
* Illinois sinkhole areas
* Illinois soil associations/maps
* Illinois streams and shorelines
* Illinois rivers
* Illinois wells-borings
* Illinois wetlands
* ISGS Wells geodatabase
* Morgan county characterization data
* Morgan characterization well information
* Model injection well locations
 | .zip.xml.shx.shp.sbx.sbn.prj.lock.dbf.met .atx .txt.sdw.lyr.spx.gdbtablx.gdbtable.gdbindexes.freelist.DS\_store.bmp.nit.dir.dat.adf.ovr.htm | Relevant graphics maps and GIS data (T31) |
| **T31.9 - FGA-2 Characterization Data Summary** | * Summary of characterization data
 | .pdf | Relevant graphics maps and GIS data (T31) |
| **T35 – Environmental Characterization** | * Summary reports based on characterization datasets for Morgan county, wetlands, USFWS, and others
 |  .pdf |   |