

# Nevada Bureau of Mines and Geology Report 51

## Preliminary Assessment of the Potential for Carbon Dioxide Disposal by Sequestration in Geological Settings in Nevada

by

Jonathan G. Price, Ronald H. Hess,  
Shane Fitch, James E. Faulds,  
Larry J. Garside, Lisa Shevenell, Sean Warren

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This CDROM contains the model data used to support the Preliminary Assessment of the Potential for Carbon Dioxide Disposal by Sequestration in Geological Settings in Nevada. In addition to the model data, this CDROM contains the full text of the report, some Nevada base map data layers, and some of the original data sets that were used to develop the model layers. These digital datasets are in shapefile format. All digital coverages are in UTM, zone 11, meters, NAD 27 projection.

A full description of the data sets used in the model and how they were processed are contained in the NBMG Report 51 document which is in Acrobat PDF file format on this CD. This information should be considered preliminary. It has not been edited or checked for completeness or accuracy.

Directory structure:

Readme.doc	This readme file.
Readme.pdf	This readme file in Acrobat PDF file format.
Report_51.pdf	Final report in Acrobat PDF file format.

Report\Report\_51.pdf Directory containing final report in Acrobat PDF file format.

CO2\_model\_data\_layers\ Directory contains data layers used to construct the final model.

CO2_model_data_layers\1K_GOOD.SHP	Areas indicated by model as meeting criteria
CO2_model_data_layers\bedrock.shp	Bedrock areas from geology map
CO2_model_data_layers\clip_ha694b.shp	Nevada carbonate province outline
CO2_model_data_layers\faults_final_clip.shp	Buffered normal and strike slip faults
CO2_model_data_layers\fin_md_mm5_120_5k.shp	Areas with potential mineral resources
CO2_model_data_layers\geology.shp	Nevada 1:500,000 scale geology
CO2_model_data_layers\geotherm20k.shp	20k geothermal buffer map
CO2_model_data_layers\k1_basin.shp	1 kilometer basin fill or greater
CO2_model_data_layers\nv_boundary.shp	Nevada boundary map
CO2_model_data_layers\people.shp	Areas of population/transportation effects
CO2_model_data_layers\restricted_lands.shp	Areas of withdrawn lands
CO2_model_data_layers\val_fill.shp	Valley fill from Geology map
CO2_model_data_layers\vf_shallow.shp	Areas of shallow valley fill

Original\_data\_sets\ Directory containing assorted data sets used to build model data sets. Some data sets are completely documented and others are not. Complete references for the source of the various data sets that were used and are contained in this directory can be found in the full report.

Original_data_sets\Cities.shp	NBMG cities and Towns in Nevada
Original_data_sets\geothermal.shp	Geothermal locations in Nevada
Original_data_sets\map120_f.shp	Draft updated version of NBMG Map120
Original_data_sets\mdist_p.shp	Mining district map of Nevada, NBMG Report 47
Original_data_sets\nbmg_qf.shp	NBMG Quaternary fault data base
Original_data_sets\nv_urban_UTM27.shp	Nevada urban areas from US Census data
Original_data_sets\Roads.shp	NBMG major Nevada roads and highways
Original_data_sets\usgs_qf.shp	USGS Quaternary faults for Nevada

Original\_data\_sets\USGS\_Geology\_500k\LINES.SHP 500k Nevada geology - lines

Original\_data\_sets\USGS\_Geology\_500k\POLYS.SHP 500k Nevada geology - polygons

Data from “Nevada Oil and Gas Well Database (NVOILWEL)” Compiled by Ronald H. Hess.  
Assisted by Shane P. Fitch and Sean N. Warren, 2004, Nevada Bureau of Mines and Geology Open-File Report 04-1:

Original_data_sets\Oil_Gas_OFR_04_01\ofr_04_01.shp	Nevada Oil and Gas Well data base
Original_data_sets\Oil_Gas_OFR_04_01\of041.pdf	Nevada Oil and Gas Well report
Original_data_sets\Oil_Gas_OFR_04_01\README.TXT	Nevada Oil and Gas Well text file
Original_data_sets\Oil_Gas_OFR_04_01\CO2_Additional_data\Readme_Oil_Data.TXT	

Data from NBMG Open-File Report 01-03:

Original_data_sets\NBMG_OFR_01_03\nv_mrds.shp	USGS MRDS data
Original_data_sets\NBMG_OFR_01_03\mils2000.shp	USBM MILS data
Original_data_sets\NBMG_OFR_01_03\dom_aml.shp	Div. of Minerals Abandoned Mines 3
Original_data_sets\NBMG_OFR_01_03\nv_pts.shp	Prospect, shaft, and tunnel sites
Original_data_sets\NBMG_OFR_01_03\OFR0103.txt	Short version OFR 01-03 report

Data from “An Analysis of Nevada’s Metal-Bearing Mineral Resources” 1996, Edited by Donald A. Singer, Nevada Bureau of Mines and Geology Open-File Report 96-2:

Original_data_sets\Metal_Bearing_Min_Res\Readme_ofr_96_2.txt	Readme file
Original_data_sets\Metal_Bearing_Min_Res\ofr962\	OFR 96-2 full report
Original_data_sets\Metal_Bearing_Min_Res\ofr962\index.htm	OFR 96-2 index to PDF files

CO2\_model\_layers\_metadata\ Directory containing metatdata for model layers

Basedata\ Directory containing various 1:1,000,000 scale Nevada base data layers.

Basedata\cities.shp	NBMG cities and Towns in Nevada
Basedata\county_p.shp	NBMG county polygon coverage of Nevada
Basedata\nvqdp.shp	NBMG 7.5 minute quadrangle boundaries of Nevada
Basedata\roads.shp	NBMG major Nevada roads and highways
Basedata\Nev_Base.tif	NBMG Georeferenced tifw 1:1,000,000 scale base map of Nevada
Basedata\NV_500k_topo.tif	USGS Scanned georeferenced tifw 1:500,000-scale topographic map of Nevada

These data and this report present a preliminary assessment of the potential for CO<sub>2</sub> disposal by sequestration in geological settings in Nevada using analysis with geographic information systems (GIS). The key assumptions made are that, for CO<sub>2</sub> disposal in saline aquifers, it is wisest to (1) avoid underground disposal in areas of fractured bedrock and restrict the assessment to parts of alluvial basins that are thick enough to provide a seal against leakage and have sufficient pressure to keep the CO<sub>2</sub> in a condensed phase; (2) stay away from active faults with fracture zones that may allow leakage of CO<sub>2</sub> from underground injection sites; (3) avoid areas that, in the foreseeable future, have a reasonably high probability of being explored and developed for mineral, geothermal, or water resources; (4) avoid current urban areas and areas that are likely to experience significant population growth during the 21st century; and (5) avoid restricted lands, such as parks and military reservations. The data sets used in the GIS analysis are made available in the electronic version of this report, so that others may reevaluate the approach with different assumptions and data sets.

For questions about this CDROM contact:

Ron Hess  
Nevada Bureau of Mines and Geology  
University of Nevada, Reno, M.S. 178  
Reno, Nevada 89557-0088  
Email: rhess@unr.edu  
Phone: 775-784-6691 Ext. 121

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