YouTube #	PRESENTER /YEAR	PRESENTATION TITLE	ABSTRACT	COMMODITY	VALUATION RELEVANCE	*YouTube* HYPERLINK	PRESENTATION TITLE & AUTHOR
1	Richard W. Jolk, 2014	**Fundamental Elements of Mineral Property Value**	There are many fundamental elements that contribute value to a mineral property. The author categorized these for discussion into five main areas; 1) elements associated with the mineralized deposit proper - tons, grade, shape, orientation, and integrity of both the ore and host rock; 2) location of the deposit with regard to climate, access, infrastructure, and supporting resources; 3) development work performed including - geologic interpretation, mine planning, process design, logistics, cost estimating and economic analysis; 4) prevailing socioeconomic, environmental and political climate; and 5) leadership and management capabilities and goals of those in charge including staffing, finance, purchasing, public relations, and marketing. Accurate mineral property valuation requires detail consideration of all these areas and an understanding of the combined level of detail and development that must be achieved at various points along a timeline so as to properly consider each area's respective contribution to overall property value.	Hard Rock	Component Checklist	https://youtu.be/K8T5iEsvlCQ	**Fundamental Elements of Mineral Property Value *by JOLK***
2	Robert Frahme, 2016	**Reliability of the Mineral Appraisal Report: The New World of Appraisal Review**	After sinking many $000s on an appraisal for decision making or litigation, how does the decision maker or legal counsel know that the report will it stand the scrutiny of litigation or negotiation? The recent re-writing of the Uniform Standards of Professional Appraisal Practice (USPAP), especially that part addressing "appraisal of the appraisal" (Standard Rule 3) is one recent sea-change in USPAP. It requires testing the underlying appraisal report against five newly clarified parameters: "Completeness, Accuracy, Adequacy, Relevance and reasonableness". When tested by a qualified reviewer, the user of the report gains a clear picture of the reliability of the report without arcane references to alleged USPAP violations, as frequently done in the past. Beyond the extensive appraisal education and experience that should be required of the practicing appraiser, the reviewer must have additional education, experience, and a different mind-set. Comments will be provided on getting it right the first time (appraiser selection), and common structural errors the reviewer should find in determining whether the report is adequately supported before the opposition asserts that it is not.	Hard Rock	Report Review Skill	https://youtu.be/efhb9vwpv8o	**Reliability of the Mineral Appraisal Report: The New World of Appraisal Review *by FRAHME***
3	John B. Gustavson, 2016	**Which Discount Rate to Use?**	The Discounted Cash Flow approach can yield a reliable Market Value estimate, when applied to producing mineral properties. However, it requires accurate input in form of production rates, commodity price forecasts and cost estimates. For development-stage properties also development costs must be available and possibly discounted at a lower rate. Before- or after-Federal-tax must be considered as well as type of mineral estate. And the IRS has strict requirements for the input parameters. Even when all parameters are available the question arises of which discount rate or rates to apply to the future cash flow. A market-derived rate is preferable, but when not available the discount rate may be built up from CAPM and/or from WACC. Weaknesses and strengths will be presented.	Any	Discounted Cash Flow Approach	https://youtu.be/HUlWzxALqDU	**Which Discount Rate to Use? *By GUSTAVSON***
4	Graham A. Davis, 2015	**The Comparison Sales Approach to Valuation: Science or Black Magic?**	The comparison sales approach recommends that a target asset can be valued by finding sales of comparable properties and adjusting those sales for geological, geographical, political, and economic differences. The most common, and often only, adjustment is for size, where a per unit value is taken from the comparison sale and applied to the number of units of metal at the target property. This method assumes that project value is linear in scale, with an intercept of zero. The assumption has, to my knowledge, never been tested. In this paper I point out the linearity assumption made by this approach and show that it is unlikely to hold. The data I use for the analysis comes from engineering designs for an open pit copper project of the same grade and geology but of different scales. I also point out that much of the recommended practice of comparison sales has never been empirically validated, and as such this valuation method more black magic than science.	Hard Rock	Sales Comparison Approach	https://youtu.be/VBhxVI9RRD0	**The Comparison Sales Approach to Valuation: Science or Black Magic? *By DAVIS***

5	Daniel Collins, 2012	**Comparison Of Market Valuation Methods And Applications For Mineral Properties**	The market valuation of mineral properties utilizes the same three Approaches as conventional real estate valuation, under the USA's Uniform Standards of Professional Appraisal Practice (USPAP), the International Valuation Standards (IVSs), and many other valuation standards. The three valuation approaches are the Cost Approach, the Income Approach, and the Sales Comparison Approach (sometimes called by its business valuation term, the Market Approach). Each Approach contains a number of methods, which are tools in the mineral property valuer's toolbox. Each method has certain applications that are useful under certain circumstances in real property valuation, many of these being specific circumstances when the real property is, or includes, the minerals estate, or an interest in the minerals estate. In this paper, the Author reviews the appropriate circumstances for application of methods within each approach, with primary emphasis on the diverse range of applications of the sales comparison approach.	Hard Rock	Valuation Approach Overview	https://youtu.be/Z43ZjE-w4qY	**Comparison Of Market Valuation Methods And Applications For Mineral Properties *by COLLINS***
6	Briana Lamphier & Edwin C. Moritz, 2011	**Highest And Best Use In Minerals Valuation - Fundamental Step In Approach To Value**	Highest and best use is a fundamental step in the appraisal process and required under the USPAP standards. Although the subject as it pertains to real estate is widely discussed, there is limited treatment when it comes to mineral rights. This presentation reviews the concept of highest and best use and discusses the general methodology with an emphasis on its application to valuing mineral rights.	Any	Valuation Fundamentals & Report Skill	https://youtu.be/05z8OMGguOI	**Highest And Best Use In Minerals Valuation *by LAMPHIER & MORITZ***
7	Marc P. Springer, 2016	**A Bear Market or What the Market Will Bear -- Industrial Mineral Market Entry and Absorption Rate**	One of the most overlooked concepts of industrial mineral appraisal is market entry. Industrial minerals include low unit-value construction aggregate and fill material to high value fillers/extenders and chemical-grade mineral deposits containing unique or special properties suitable for end-users requirements. Mineral property owners commonly fail to consider, among other cost and timing related issues, realistic marketability and absorption rate attributes when valuing industrial mineral properties for sale. The dynamic relationship between mineral producers and consumers requires mineral property valuers to examine closely the supply/demand dynamics, matching a subject mineral deposit with end-use product requirements, and existing competitive contractual relationships for target markets. When large value disparities exist between industrial mineral property appraisals, the difference is often reconciled by a comprehensive feasibility analysis, which considers realistic market attributes. The Security Exchange Commission generally requires sales contracts, in addition to feasibility analyses, as reserve calculation criteria for U.S. industrial mineral property investments.	Industrial Minerals	Importance of Market Focus	https://youtu.be/qsUKiS14-6A	**A Bear Market or What the Market Will Bear *by SPRINGER***
8	David M. Abbott, Jr., 2015	**Enforceable Codes of Professional Ethics --Why, How, and in Practice**	Those organizations seeking recognition from regulators like the Canadian Securities Administrators for NI 43-101 need to have an enforceable code of ethics providing for discipline of members who violate the code regardless of the disciplined member's residence or where the property is located. The organization should have disciplinary procedures setting out the disciplinary process, the rights of those alleged to have violated the code, appellate procedures, and potential sanctions. Once a code of ethics and related disciplinary procedures are adopted, the organization's membership should be aware of several important aspects of their implementation. Investigations take time, frequently months. Because investigations should be conducted confidentially, those who have made allegations or those who know about particular cases often become impatient because resolution doesn't occur within a short period of time.	Any	Professional Ethics	https://youtu.be/z5WKsK5CdEA	**Enforceable Codes of Professional Ethics --Why, How, and in Practice *by ABBOTT***

9	John B. Gustavson, 2015	**Case History: Actual Mineral property Sales in Pennsylvania**	The market for mineral properties in the Marcellus has matured. First, acreage with historic low-royalty and lease bonus, some Held-by-Production, was augmented by a giant land rush with high royalties (16-20%) and bonus in the thousands of dollars/acre. The latter enabled mineral appraisal by the lease bonus approach. This was followed by discoveries of liquid-rich "sweet spots". Royalty, or rather mineral property buyers finally appeared including long-term individual investors as well as funds, brokers and even syndicators. Examples, some of them crass, will be given. These buyers together with selling landowners now present a dynamic market. The transactions can be researched and adjusted to provide comparable sales of actual mineral property. Ways to arrive at "confidential" sales prices will be shown for Butler County. Many parameters must be included when adjusting these sales prices to appraise undeveloped mineral rights. Examples will be shown. Also, the old rule-of-thumb that Fair Market Value equals a multiple of lease bonus was found still to be valid, albeit adjusted to reflect the resource play nature of this and other shale plays.	Oil & Gas (Unconventional)	Sales Comparison Approach	https://youtu.be/j06CDMBeodA	**Case History: Actual Mineral property Sales in Pennsylvania *by GUSTAVSON***
10	John J. Manes & Tyler N. Quartiero, 2013	**Lessons Learned: Documentation & Recordkeeping On Appraisals Used For Conservation/Donation Purposes**	In late 2006, an appraiser working for CMC, Inc. prepared a mineral interest appraisal report to be used for charitable conservation/donation purposes. In 2010, Special Agents of the Internal Revenue Service's Criminal Investigation division performed an unexpected investigation and audit of the appraiser and appraisal report. Following an extensive review process, it was revealed that the landowners of the mineral property fraudulently obtained title to the mineral property, and the possibility of collusion between the landowner and appraiser was being investigated. The appraiser, appraisal report and company were all determined by the Internal Revenue Service to not have been involved, and the company was later asked to represent the Internal Revenue Service with prosecution of the landowners. The author of this paper was not the appraiser being investigated, however witnessed the overall process as an executive of the company. Several valuable lessons about contracting, clients, donation appraisals, reports and paperwork were learned.	Any	Report Skill	https://youtu.be/7TXWc7RF8oI	**Lessons Learned: Documentation & Recordkeeping On Appraisals *by MANES & QUARTIERO***
11	Timothy S. Knobloch & John B. Gustavson, 2013	**Appraisal Lessons Learned In The Marcellus Shale**	Historically, FMV appraisals in the Appalachians were limited to valuing royalty income from marginal wells for estate tax purposes. FMV was typically based on 1) a multiple of monthly income and/or 2) production decline curve and related DCF analysis. The Marcellus Shale with its significant future income from BCF-level reserves from horizontal wells demanded the approach required to include also sales comparison and lease bonus methods. Appraisals to date have focused on small, single-interest owners in remote areas with limited Marcellus development, to much larger 70,000+ acre ORRI valuation. The latter included properties owned by multiple individuals and with multiple well operators, various stages of well development, but with limited public data. Valuable lessons learned through these appraisals included: client-provided information, "sticks-of-the-bundle" to be valued, lease limitations, Highest & Best Use, adjustments of comparable sales, state and other public resources, company presentations, lease broker interviews, variations in gas quality, water availability and markets for natural gas and NGL's.	Oil & Gas (Shale)	Valuation Approach Overview	https://youtu.be/jAEcLTA00VA	**Appraisal Lessons Learned In The Marcellus Shale *by KNOBLOCH & GUSTAVSON***

12	John B. Gustavson, 2013	**Appraisal and Apportionment of Unleased Oil and Gas Mineral Rights in the Williston Basin, N. Dakota**	Property is located at rim of Williston basin, underlain by Bakken shale. Owner wanted to gift his minerals under IRS rules. Nearby test wells for Madison and Spearfish were plugged and abandoned, but did not condemn the acreage. The paper describes the resources based on geology. The author describes his estimate of Fair Market Value. The Highest & Best Use is for exploration for oil/gas. Four approaches were considered: 1) Risk-adjusted DCF was found unreliable, because of lack of lease and development plans; 2) Lease Bonus approach was found to be equal to a DCF approach from the landowner's standpoint from future leasing; 3) Sales Comparison was not useful as no sales were found of severed minerals in a comparable setting, and 4) Cost approach was not applicable, because no development costs were known to have been expended. Therefore, the Lease Bonus approach was applied. Leasing patterns were observed and the FMV was assessed. Finally, the landowner wanted an apportionment of the FMV into the values of executive rights and non-participating royalty rights. The author derived a schedule for apportionment based on probability for income for the two types of property rights.	Oil & Gas (Conventional)	Case History	https://youtu.be/P1JAgttrTDo	**Appraisal and Apportionment of Unleased Oil and Gas Mineral Rights *by GUSTAVSON***
13	John B. Gustavson, 2012	**Trona Mineral Estate Valuation, Green River, Wyoming**	Case deals with soda ash made from trona. Property is located near producing mines. Highest and best use of property is for the mining expansion into the property by neighboring mines, once underground access has been achieved. This is expected in the near future based on Mining Plans by two companies per State files. The appraisal is based on three approaches of descending level of confidence, the results of which have been reconciled. The three approaches are: Risk-adjusted DCF of expected development and production (high confidence), Time-adjusted Prior Transaction of negotiated lease of identical property (low confidence), and Transaction Comparison with executed mineral lease (low confidence). The Cost approach is inapplicable, because of property's advanced stage of reserve knowledge. Thus, the increase in value has surpassed the costs of original exploration activities. The three approaches yielded results for reconciliation: DCF $6.59 million, Prior Transaction $5.33 million and Comparable Transaction $4.71 million. The reconciled value by giving triple weight to DCF approach is $5.96 million ($6 million rounded).	Industrial Minerals	Case History	https://youtu.be/J60n5Lgv8Ko	**Trona Mineral Estate Valuation, Green River, Wyoming *by GUSTAVSON***
14	Gerald Clark, 2011	**Scope Of Work: Building Block For The Appraisal**	The unique characteristics of minerals appraisal have often been in conflict with standards written for real property surface assets and businesses. Changes to U.S. standards with the Uniform Standards for Professional Appraisal Practice (USPAP) and international standards with the International Valuation Standards (IVS) are providing more freedom to structure minerals appraisal that better meet the client's needs. It is the appraiser's responsibility to establish a framework within the appraisal that leads to credible results that are not misleading to the reader of the report. The appraiser accomplishes this by first providing information expected by most readers of similar reports. Then a course is set for the intended research and analysis to be performed, clearly explaining the steps to be taken to develop the opinions and conclusions of the finished work. This paper is intended to provoke thought on ways the appraiser may use the scope of work to meet the client's needs, while at the same time accomplish a credible minerals appraisal that is not misleading.	Any	Valuation Fundamentals & Report Skill	https://youtu.be/zqzIPXXHCQ0	**Scope Of Work: Building Block For The Appraisal *by CLARK***
15	Gerald Clark, 2011	**Reconciliation In Minerals Appraisals -- The Final Adjustments**	Often overlooked and hurried, the final reconciliation of an appraisal can bring home the efforts of research and analysis that were presented in the pages that preceded it. Just as an attorney presents closing arguments in a trial, the appraiser can sell his or her opinion of value by summarizing points made throughout the appraisal and give added weight to important specific ideas and concepts. This paper looks at some questions the appraiser should be asking while writing the final reconciliation. It is also intended to provoke thoughts on various methods that can be used to better convince the reader.	Any	Valuation Fundamentals & Report Skill	https://youtu.be/NRrCrXMxdD4	**Reconciliation In Minerals Appraisals *by CLARK***

16	Bereket A. Berhe, et al., 2016	**Mineral Valuation in a World of Volatile and Cyclical Commodities**	The fortunes of mining companies and their implied value are tied to cycles - both economic and commodity – within which they operate. Hence the determination of appropriate future metal prices is one of the most critical factors faced by mineral valuators especially for advanced projects. Price, and hence revenue, is usually the most sensitive input to the valuation model. Empirical studies of past forecasts show that the success rate for commodity price forecasting is very poor. This paper explores various approaches and comments on their strengths and weaknesses. We conclude that careful evaluation of long-term metal prices is a key element and is hardly a luxury that can be left to simple averages or rules of thumb.	Hard Rock	Price Forecast in DCF Approach	https://youtu.be/pc9vxgAsAnY	**Mineral Valuation in a World of Volatile and Cyclical Commodities *by BERHE***
17	Alan Stagg, 2017	**The Implications of the Use of a Single Financial Model in the Income Approach to Value**	It is common in conducting mineral appraisals in which the standard of value is market value for the appraiser to develop a single discounted cash flow model as the basis for the opinion of value. Implicit in this technique is the assumption that there is a one hundred percent probability that the input used in constructing the model will occur. Upon even the most modest reflection, it should be evident that this is not going to be the case. The author's experience in working with those involved in mergers and acquisitions affirms the general use of multiple financial models in establishing a proposed purchase price, with various iterations of the financial model addressing uncertainty (or, risk) and the sensitivity of value to variations in the input. By definition, one would expect an opinion of market value to reflect the practices of market participants, and that the opinion thus would have addressed these issues. In this presentation, the author addresses the probabilistic technique in developing an opinion of market value using the income approach to value and provides examples of its use.	Any	Sensitivities in Using the DCF Approach	https://youtu.be/T5205MV8TM0	**The Implications of the Use of a Single Financial Model in the Income Approach to Value *by STAGG***
18	Amy Jacobsen and Robert Cameron, 2018	**Cash Flow Models - Evaluations Versus Valuations**	Cash flow modeling is a widely accepted tool for evaluating and valuing mineral projects. But the appropriate application of this tool is often misunderstood. The use and results of a cash flow model can be quite different when applied to evaluations versus valuations. The net present value determined in the process of evaluating a project may not necessarily indicate the value of the project in terms of standard valuation methodologies. This paper provides a comparison of the use, application, methods, inputs and results for cash flow models that are used in valuations as opposed to evaluations.	Any	See Title	https://youtu.be/uTwNEl6HQpg	**Cash Flow Models - Evaluations Versus Valuations *by JACOBSON & CAMERON***
19	Donald Lumm, 2018	**Desktop Data Evaluation and Qualifications for Coal Reserve Estimation and Valuation**	Desktop studies and summary reports of coal reserve tonnage estimates prepared by geologists and mining engineers are typically used by mineral appraisers to prepare a subsequent, independent appraisal report for a subject property. Although the mineral appraiser may himself be an established professional geologist or mining engineer, there is often a disconnect in the use and application of the reserve report for producing a mineral valuation. For example, the "reserve report" may not completely conform to SEC or CIRIRSCO guidelines, and instead be purposed for obtaining a lease or mine permit on a property, for extending the life of a mine property, or for reasons other than banking or investment. Moreover, the tonnage estimates may be based upon thickness modeling and mapping sourced from incomplete, inaccurate, or unverifiable borehole or coal quality data. The mineral appraiser should thus have a firm understanding of the data and methodology used in the tonnage estimates, and should question or reject the tonnage estimates from these reports. This presentation will review the qualifications of desktop data for use in coal reserve reports and some of the guidelines in reporting.	Coal	Importance of Due Diligence	https://youtu.be/iLuSFY1BYs0	**Desktop Data Evaluation and Qualifications for Coal Reserve Estimation and Valuation *by LUMM***

20	Fredric Pirkle & William Bagby, 2019	**Three Pillars of Mineral Valuation**	The International Mineral Valuation (IMVAL) Committee, founded in 2012, develops strategies for conducting mineral valuations. These strategies, have been developed into a mineral asset valuation template called the International Mineral Property Valuation Standards Template and is part of IMVAL's work to establish consistent international standards for mineral property valuation and reporting. This template is a living document that is updated from time to time and is based on three core values or pillars (fundamental principles): Competence, Materiality, and Transparency. Objectivity, Independence, and Reasonableness may be applied as required by national codes or standards. The Template harmonizes international standards for valuation of mineral assets as real estate and represents a consensus of current good practices. It is not a stand-alone reporting code and does not supersede existing national reporting standards. The Template deals with Valuation, which is distinct from Evaluation.	Any	Fundamental Valuation Principles	https://youtu.be/HVnYSkSugoE	**Three Pillars of Mineral Valuation *by PIRKLE & BAGBY***
21	John B. Gustavson & Fredric Pirkle, 2019	**International Valuation Problems -- Solutions by IMVAL**	These are standards AFTER reserves have been estimated. What is fair value, market value, investment value? International Mineral Valuation (IMVAL) Committee, founded 2012, developed strategies for conducting those mineral asset valuations. The strategies have been combined in a template, the "International Mineral Property Valuation Standards Template", linked to the SME Standards website. IMVAL works toward consistent international standards for mineral asset valuation and reporting. The Template deals with Valuation -- putting a cash value on minerals in the ground, -- which is distinctly different from the much broader Evaluation. This template is a living document, based on three fundamental principles: Competence, Materiality, and Transparency. The Template is a base on which countries and appraisal associations may harmonize the standards in their own countries for valuation of minerals as real estate. It represents a consensus of current good practices. It is not a stand-alone reporting code and does not claim to supersede existing national reporting standards. To put cash value on minerals, be it land, at feasibility stages, during development or producing: you need IMVAL!	Any	International Harmonization	https://youtu.be/GKwn7EB9DZM	**International Valuation Problems -- Solutions by IMVAL *by GUSTAVSON & PIRKLE***
22	James M. Beck, 2019	**Eminent Domain Mineral Property Valuations: When Self-Proclaimed "Latitude" Falls Somewhere South of Competence and Ethical Obligations**	Mineral property appraisers in eminent domain actions on properties where mining is the highest and best use must be competent in all phases of mineral project development (or retain competent assistance), and eminent domain appraisal requirements (USPAP Competency Rule). Failure to ensure such triggers the issue of appraisal competence, and demonstrates a disregard of the code(s) to which the appraiser is subject. The assertion of “latitude” in the valuation process does not exonerate the appraiser from a disregard of the USPAP Competency Rule. Lack of independence (i.e., “advocacy”) in mineral property appraisal is the usual result of a weak background in mining and/or appraisal theory. While it is apparent to those able to recognize it, judges and juries cannot be expected to detect purposefully misleading valuations. Deception by the appraiser can lead to either over-compensation or failure to provide just compensation. Yet, the purpose of eminent domain proceedings is to leave the property owner no richer or poorer as a result of the taking. Deceptive practices encountered in litigation settings are discussed in context with competency, ethics, and professional certifications.	Mining	USPAP Competency Rule, Ethics	https://youtu.be/SY4evBZofac	**Eminent Domain Mineral Property Valuations *by BECK***